ENGINEERING NEWS-RECORD

EIGHTIETH YEAR OF PUBLICATION

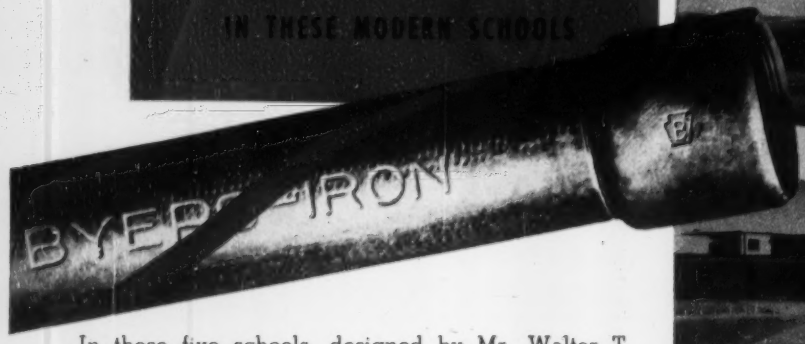
E B POWER GS N
UNIVERSITY MICROFILMS IN
313 N 1 ST
ANN ARBOR MICH

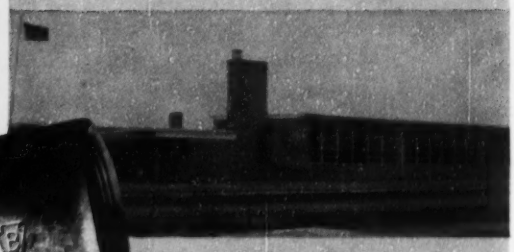
A McGRAW-HILL PUBLICATION

Custer Consolidated School

WROUGHT IRON PIPE EXPELS CORROSION

FROM THE RADIANT HEATING SYSTEMS IN THESE MODERN SCHOOLS





Edmonson Junior High School

Lakeshore School

Camden Frontier School

Ladywood High School

In these five schools, designed by Mr. Walter T. Anicka, Architect, Ann Arbor, Michigan, wrought iron pipe was selected to safeguard the radiant heating systems against the threat of corrosion and the resulting premature failures.

There are good reasons for this selection. Here, as in the thousands of other radiant heated structures using wrought iron pipe, this time-tested material answered the need for *ease of installation, dependability in service.* Wrought iron pipe is simple, easy and fast to install because it takes short radius bends, without spring-back. It produces sound welds, free from pin-hole leaks. When threading is necessary, wrought iron's uniform structure assures sharp, full-depth threads. Another installation advantage is wrought iron's ability to withstand mechanical damage. In service, wrought iron pipe is more than a match for corrosive threats, stays on the job longer, at lower costs per year.

Our bulletin, *Wrought Iron Pipe for Radiant Heating,* gives complete details. Write for your copy.

A. M. Byers Company, Pittsburgh, Pa. Established 1864. Boston, New York, Philadelphia, Washington, Atlanta, Chicago, St. Louis, Houston, San Francisco. Export Department: New York, N.Y.

BYERS

CORROSION COSTS YOU MORE THAN WROUGHT IRON

WROUGHT IRON

TUBULAR AND HOT ROLLED PRODUCTS

ELECTRIC FURNACE QUALITY ALLOY AND STAINLESS STEEL PRODUCTS

6.1 MILE SHORT CUT

sets earth-moving records!

HARD ROCK LUG for tire-killing work.

SURE-GRIP — top choice for traction.

ALL-WEATHER for maximum flotation.

Sure-Grip, All-Weather—T. M.'s
The Goodyear Tire & Rubber Company, Akron, Ohio

IN THE HEART OF THE GREAT SMOKIES, between Black Mountain and Old Fort, two new 22-foot pavements with 4-foot center strip and 10-foot shoulders, have at last replaced a dangerous bottleneck.

The contract called for blasting and slicing record cuts through mountaintops—and phenomenal fills—but the W. E. Graham Construction Company of Cleveland, N. C., moved 3½-million cubic yards in less than three-quarters of the time estimated!

Not bad for a job that included an 880,000 cubic-yard fill, a 440,000 cubic-yard cut, up to 350-foot differences between fill bottoms and pregraded knolls (all within 450 feet of roadway)—and a 173-foot-deep fill over a 66" x 576' culvert!

IT'S jobs like these that make contractors glad that "GOODYEAR IS THERE"—all there—with rugged, strong-pulling, long-enduring tires—specifically designed to do the best, most economical job on each piece of equipment.

That's why you'll find Goodyears "there" on so many tough jobs—*specified* by the men who keep those tough jobs rolling at lowest tire-cost per yard! Goodyear, Truck Tire Dept., Akron 16, Ohio.

FOR EACH JOB, THERE'S A COST-CUTTING GOODYEAR TIRE!

GOODYEAR

MORE TONS ARE HAULED ON GOODYEAR TRUCK TIRES THAN ON ANY OTHER KIND

ENGINEERING NEWS-RECORD

ABP Member ABC

Editorial offices: 330 W. 42nd St., New York 36, Tel. LOngacre 4-3000

Number of copies of this issue printed: 61,703

Contents on page 17

Waldo G. Bowman

Editor

E. E. Halmos Jr. — *Managing Editor*

J. J. Christie — *Asst. Managing Editor*
V. T. Boughton — *Transportation, Power*
F. S. Merritt — *Architectural, Structural*
R. H. Dodds — *Contracting, Heavy Construction*
S. C. Jensen — *Materials and Equipment*
A. J. Fox Jr. — *Hydraulics, Water Supply, Sanitation*
G. T. Orick — *Labor, Men and Jobs*
J. P. Chamberlain — *Business and Finance*
R. W. O'Neill — *International, National Affairs*
J. R. Owen — *Municipal*
J. R. Carr — *Midwest (Chicago)*
L. L. Wise — *West (San Francisco)*
N. A. Bowers — *Consultant (San Francisco)*
Elsie Eaves — *Business News Department*
J. H. Webber — *Economics*
J. A. Mahoney, M. O. Wetzel — *Construction Reports*
M. W. Roessler, E. R. Huber, Dori Weiss — *Statistics, Costs, Prices*
H. G. Compton — *Photography*
M. V. Leggiero — *Makeup*
T. D. MacGregor, B. J. Lamb, B. J. Bagley — *Copy, Rewrite*
L. T. Tarpey, J. C. Greenough — *Printing*

Washington News Bureau, Room 1189 National Press Building: G. B. Bryant, Jr., *Manager,* Glen Bayless, A. E. Adams, Jay Flocken, Boyd France, Sam Justice, Craig Lewis, D. O. Loomis, Jesse Mock, Gladys Montgomery, A. L. Moore, William Olcott, M. A. Reichek, Caroline Robertson, J. T. Skelly, V. B. Smith.

Domestic News Bureaus: Atlanta, 1321 Rhodes-Haverty Bldg., E. D. White; **Cleveland,** 1510 Hanna Bldg., R. A. Cochran; Detroit, 856 Penobscot Bldg., J. C. Jones Jr.; **Houston,** 1303 Prudential Bldg., J. A. Lee; **San Francisco,** 68 Post Street, M. C. Ralston; **Los Angeles,** 1111 Wilshire Blvd., John Shinn; **Seattle,** 6040 Fifth Ave., N.E., Ray Bloomberg.

Correspondents: Albany, Albuquerque, Augusta, Me., Austin, Boston, Boulder, Baltimore, Birmingham, Bismarck, Charleston (W. Va.), Charleston (S. C.), Columbus, Cincinnati, Cleveland, Chicago, Cheyenne, Dallas, Denver, Detroit, Durham, Harrisburg, Helena, Houston, Hartford, Indianapolis, Jackson, Miss., Jacksonville, Jefferson City, Kansas City (Mo.), Lansing, Lincoln, Little Rock, Miami, Memphis, Minneapolis, Montgomery, Milwaukee, New Orleans, Norfolk, Omaha, Oklahoma City, Philadelphia, Pittsburgh, Portland (Ore.), Providence, Phoenix, Pierre, St. Louis, Schenectady, Syracuse, St. Paul, Seattle, Salt Lake City, Spokane, Topeka, Trenton, Wilmington. **Canada:** Montreal, Toronto, Ottawa, Victoria, Regina.

Foreign News Bureaus: J. K. Van Denburg, Jr., **New York;** G. W. Schroder, **Frankfurt;** Nathaniel McKitterick, **London;** Herbert Leopold, **Manila;** John Wilhelm, **Mexico City;** Ross Hazeltine, **Paris;** A. W. Jessup, Tokyo; L. I. Holmes, **Sao Paulo. Correspondents:** Amsterdam, Athens, Bangkok, Bogoto, Bombay, Brussels, Buenos Aires, Caracas, Copenhagen, Geneva, Havana, Helsinki, Johannesburg, Lima, Madrid, Melbourne, Oslo, Rome, Stockholm, Sydney, Tehran, and 21 other principal cities and countries.

Robert F. Boger

Publisher

February 11, 1954 ENGINEERING NEWS-RECORD Vol. 152, No. 6

Member ABC and ABP

Published weekly by McGraw-Hill Publishing Company, Inc., James H. McGraw (1860-1948), Founder. **Publication Office, 99-129 North Broadway, Albany 1, N. Y.**

Executive, Editorial and Advertising Offices: McGraw-Hill Building, 330 W. 42nd St., New York 36, N. Y. Donald C. McGraw, President; Willard Chevalier, Executive Vice-President; Joseph A. Gerardi, Vice-President and Treasurer; John J. Cooke, Secretary; Paul Montgomery, Senior Vice-President, Publications Division; Ralph B. Smith, Vice-President and Editorial Director; Nelson Bond, Vice-President and Director of Advertising; J. E. Blackburn, Jr., Vice-President and Director of Circulation.

Subscriptions: Address correspondence to Engineering News-Record—Subscription Service, 99-129 North Broadway, Albany 1, N. Y., or 330 W. 42nd St., New York 36, N. Y. Allow one month for change of address.

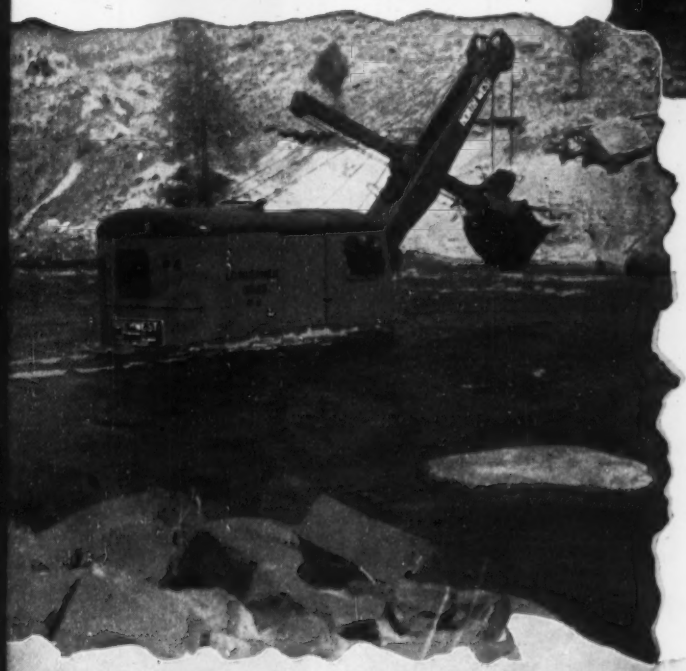
Subscriptions are solicited only from persons with an identifiable commercial or professional interest in construction and building. Position and company connection must be indicated on subscription orders.

Single copies 35c. Subscription rates—United States and possessions, $6.00 a year; $9.00 for two years; $12.00 for three years. Canada, $8.00 a year; $12.00 for two years; $16.00 for three years. Other Western Hemisphere countries, $15.00 a year; $25.00 for two years; $30 for three years. All other countries, $20.00 a year; $30.00 for two years; $40.00 for three years. Entered as second class matter October 29, 1936, at the Post Office at Albany, N. Y., under Act of Mar. 3, 1879. Printed in U. S. A. Copyright 1954 by McGraw-Hill Publishing Co., Inc.—All Rights Reserved.

DIGGING PROBLEMS

are not the only problems!

Northwest Crawlers get you there and back!



That job you're on now? No problems perhaps, but what of tomorrow?

That's the thing about Northwests! They meet the daily, unexpected problems that every job presents.

Take Northwest Crawlers! They have proved themselves over miles of travel. Where there are grades to climb, streams to ford or rough going to negotiate, your Northwest gets you there — and back.

It's a *real* Rock Shovel — you're set for the toughest digging — sure of the highest output, in any digging. It is quickly converted and you have a recognized leader whether you operate it as a Shovel, Crane, Dragline or Pullshovel.

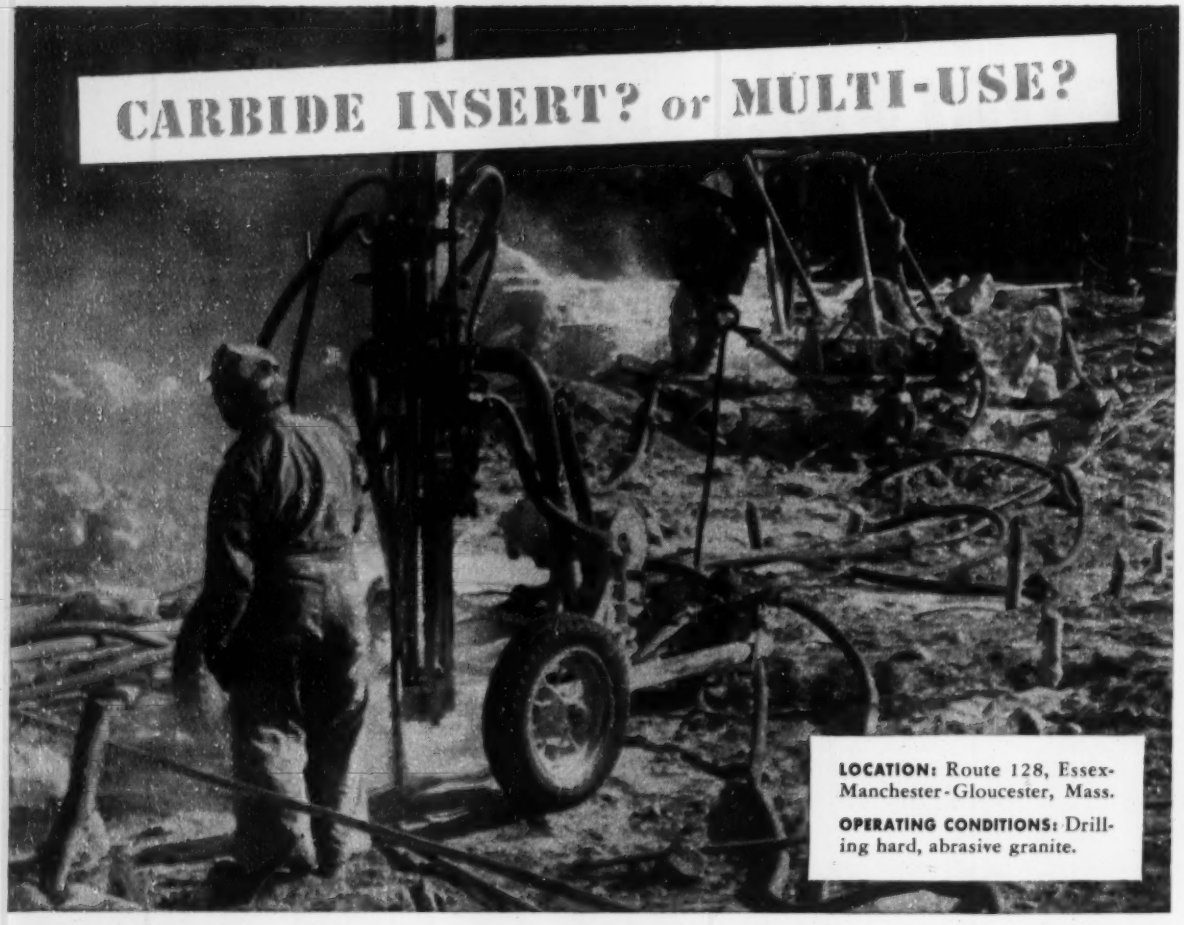
Whether at sea level or two miles up you are equipped with a properly engineered power plant plus the Northwest Dual Independent Crowd that utilizes force many other shovels waste entirely.

These things are worth money. They are advantages that are worth planning for. Now is the time to learn about Northwest features. Let us tell you the whole story.

NORTHWEST ENGINEERING COMPANY
1502 Field Building, 135 South LaSalle Street, Chicago 3, Illinois

NORTHWEST

SHOVELS • CRANES • DRAGLINES • PULLSHOVELS


CARBIDE INSERT? or MULTI-USE?
LOCATION: Route 128, Essex-Manchester-Gloucester, Mass.
OPERATING CONDITIONS: Drilling hard, abrasive granite.

TIMKEN® carbide insert bits give extra footage in hard, abrasive granite for Gil Wyner Company, Inc.

IN excavating 375,000 cubic yards of extremely hard and abrasive granite for Massachusetts Route 128, Gil Wyner Company, Inc. gained extra footage with Timken® carbide insert bits!

Timken carbide insert bits are most economical for highest speed through hard and abrasive ground. They're also best for constant-gage holes, small diameter blast holes and very deep holes.

When it comes to ordinary ground, however, Timken multi-use bits are the most economical. With correct and controlled reconditioning, they give lowest cost per foot of hole when full increments of steel can be drilled.

With *both* Timken carbide insert and multi-use bits, you can solve your drilling problems. Both are interchangeable in each thread series. Many different Timken bits fit the same threaded drill steel. You can switch bits quickly and easily as the ground changes—right on the job!

Both Timken carbide insert and multi-use bits are made from electric furnace Timken fine alloy steel, have special shoulder unions that protect threads from drilling impact.

Let our Rock Bit Engineering Service help you select the best bit for your job—whether carbide insert, multi-use or both. Write The Timken Roller Bearing Company, Rock Bit Division, Canton 6, Ohio. Cable address: "TIMROSCO".

Timken threaded multi-use rock bit

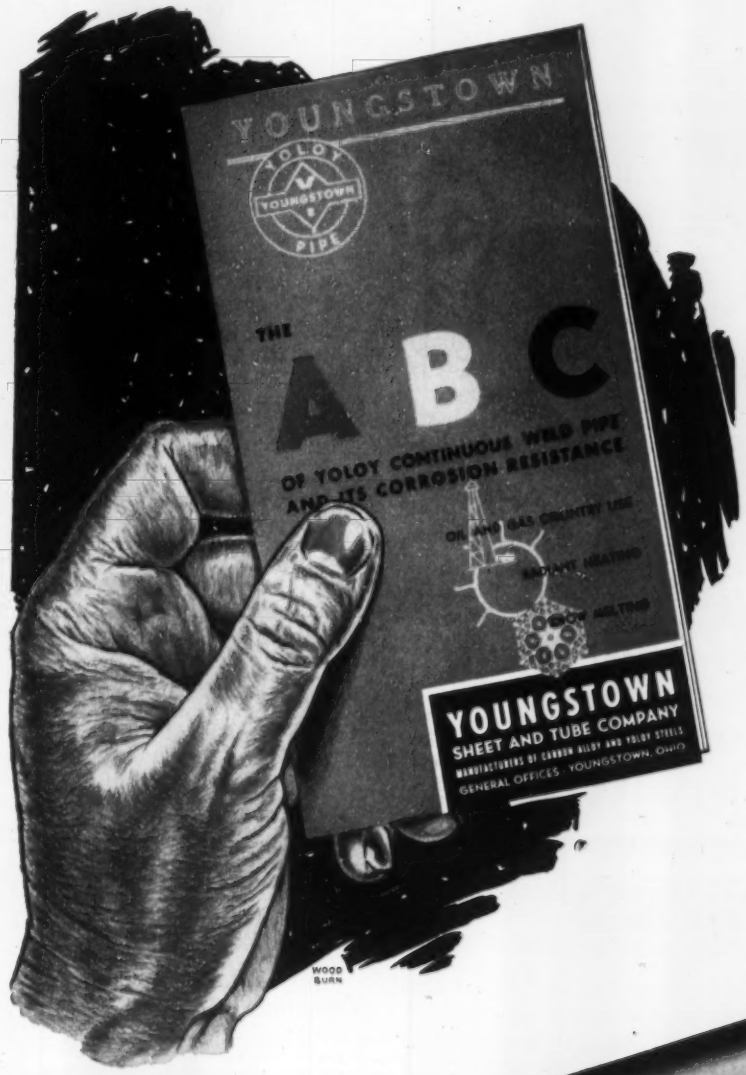
Timken threaded carbide insert rock bit

your best bet for the best bit ... for every job

TIMKEN

TRADE-MARK REG. U. S. PAT. OFF.

This DATA may solve YOUR piping problem



● Here is the up-to-date story of Yoloy Continuous Weld Pipe—a remarkable low alloy steel whose nickel-copper content gives it unique ability to withstand corrosion, abrasion and shock. These outstanding advantages combined with high strength, ductility and weldability make Yoloy Pipe an excellent selection.

Proved by 18 years of satisfactory performance, Yoloy is highly recommended by users in such service as radiant heating, snow melting, gas line gathering, brine lines and other industrial piping.

This new folder presents the facts and figures on Yoloy's physical and chemical properties, with data on sizes now available and other information you'll need to select Yoloy Continuous Weld Pipe to meet your special requirements. Write for a copy today.

Youngstown

QUALITY
YOUNGSTOWN
SERVICE

THE YOUNGSTOWN SHEET AND TUBE COMPANY

Manufacturers of Carbon, Alloy and Yoloy Steel

General Offices — Youngstown 1, Ohio

Export Office-500 Fifth Avenue, New York

COLD FINISHED CARBON AND ALLOY BARS · ELECTROLYTIC TIN PLATE · COKE TIN PLATE · WIRE · PIPE AND TUBULAR PRODUCTS · CONDUIT · RODS · SHEETS · PLATES · BARS · RAILROAD TRACK SPIKES

7 reasons for 2-way radio

★ Control field operations
★ Save time
★ Increase efficiency
★ Cut idle time
★ Expedite and improve customer service
★ Coordinate vehicle dispatching
★ Lower costs

2-WAY MOBILE RADIO

every reason for G-E!

● The importance of 2-way radio to you *for any reason* is actually a point in favor of selecting General Electric equipment! Radio saves you money. Don't lose this money on an expensive-to-maintain communication system. Buy G-E! Its reputation for low cost maintenance requirements is widely respected throughout your industry! And, radio must perform on-the-job *at all times.* When it fails, your profit takes a beating! Superior G-E design . . . G-E components are profit insurance . . . an effective guarantee of dependable performance. Select 2-way radio equipment carefully and know why General Electric is preferred by leading companies in your business.

SEND FOR FREE INFORMATION!

General Electric Company, Section X2223-11
Electronics Park, Syracuse, New York

Please send bulletin ECR-47 showing how General Electric 2-way radio can aid me in the construction business!

NAME.....COMPANY.....

ADDRESS.....

CITY.....STATE.....

GENERAL ELECTRIC

READER COMMENT

Harmful to architects

SIR: Since Mr. Frank Lloyd Wright appeared on a TV program in October, I have heard numerous reactions from my laymen friends on this program, and I have gathered from their comments that the outstanding impression remaining with them was that architects:

1. Are difficult to comprehend and etheral in their professional approach.
2. Have a haughty disregard for costs or that they are inaccurate or misleading in their estimates of cost.

Mr. Wright in his TV appearance pointed to the two houses of his sons and indicated that they cost $35,000 to $40,000 each. The obvious reaction was that either Mr. Wright could perform miracles or that he did not know the figures because these houses obviously should cost twice that much or more.

It has been my impression for many years that the architectural profession suffers in the public mind because it is generally believed that architectural services are a luxury and that architects are impractical and unrealistic. It is also my feeling that Mr. Wright in his latest public appearances has greatly fortified and strengthened this impression in the minds of the public.

This is all the more regrettable because the American Institute of Architects is just now embarking on an expensive public relations campaign to demonstrate to the public that the services of an architect are well worth their cost.

O. KLINE FULMER, *Architect*
Princeton, N. J.

Inspection insurance

SIR: In his letter "Two ways to stop collapses" (ENR Jan. 14, 1954, p. 12), W. C. Whaley refers to my letter on the insurance inspection system as used in France (ENR Dec. 17, 1951, p. 11). Mr. Whaley has overlooked the fact that the checking of documents and supervision of the work are carried out by highly skilled technical organizations, including laboratories, as independent from the insurance companies as are the testing laboratories in this country that carry out inspection work on civil engineering or structural jobs.

But the scope of responsibilities of these "bureaux de controle," contrary to their American counterparts, extends to the domain of design and to securing compliance of execution to

(*Continued on page 10*)

It costs time and money to be ONE DIPPER LATE!

Amsco manganese steel dippers are regularly ordered for replacement on equipment in the field. Often they go to users who found that ordinary steel dippers simply would not hold up.

It's smart economy to specify tough, dependable Amsco dippers with original equipment.

Next time you order a power shovel or a replacement dipper, specify long life right on your purchase order . . . specify an Amsco manganese steel dipper.

American Brake Shoe Company

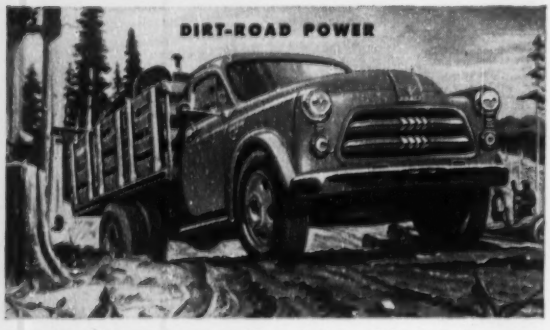
AMERICAN MANGANESE STEEL DIVISION
Chicago Heights, Ill.

NEW DODGE *"JOB-RATED"* TRUCKS OFFER . . .

A better deal for the man at the wheel

A better deal in comfort, visibility! More vision area than in any other leading make. New easy-chair seats with most hiproom. New cab sealing against dust, drafts. New two-tone interior styling.

A better deal in loading height with pick-up and panel floors less than 2 feet from the ground . . . knee-high for loading ease. Lower running boards for easier entry. Lower hood for greater visibility.



A better deal in power from famous 6's and the most powerful V-8's of all leading trucks. V-8's with efficient hemispherical combustion chambers are available in 1½-, 2-, 2½-ton, standard on 2¾-, 3-, 3½-ton.

A better deal in handling ease! New steering system keeps Dodge ahead of the field with the sharpest turning of any comparable trucks. New power steering available in 4-ton models.

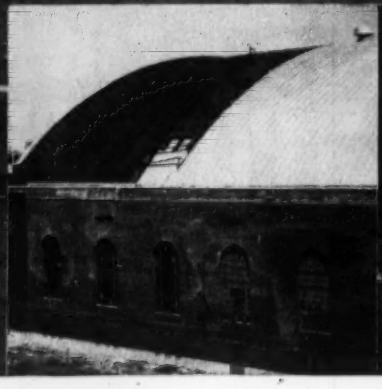
New Dodge *"Job-Rated"* trucks are designed to save the driver time and effort—to give the man at the wheel "a better deal" and make him more efficient. Dodge trucks offer a better deal for the man who pays the bills, too. They're priced with the very lowest; and their low operating costs can save the owner hundreds of dollars during their long lifetime of service.

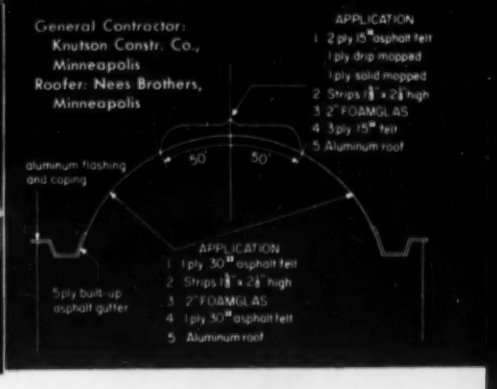
So, for a better deal on a new truck, see your friendly Dodge dealer. He knows trucks, and he's the kind of a man you can rely on completely. See or phone him today.

See "Break The Bank" with Bert Parks on TV (ABC, Sundays) • See "Make Room For Daddy" with Danny Thomas on TV (ABC, Tuesdays) • Hear "The Roy Rogers Show" on radio (NBC, Thursdays) • Enter the Dodge 40th Anniversary All-America Contest. See your dealer.

SEE YOUR FRIENDLY DODGE DEALER

NEW DODGE *"Job-Rated"* TRUCKS





18,000 Gopher fans made "rain" until field house roof was insulated with FOAMGLAS

Large crowds in the University of Minnesota Field House used to be crackerjack "rainmakers." How?... They generated so much humidity that the original insulation on the roof became water-soaked. Then there was nothing to prevent condensation from forming on a cold underside of the roof deck. "Rain" literally fell in the field house. During a basketball game, for example, play had to be stopped frequently to mop up the floor.

FOAMGLAS, the cellular glass insulation was picked to solve this problem in 1948. It hasn't rained since. The sealed glass cells of FOAMGLAS *can not* absorb moisture, assuring constantly high insulating performance despite the high humidity inside and the frequently extreme outside temperatures in the Minneapolis area. The roof curvature was no problem with easily handled blocks of FOAMGLAS, readily shaped and fitted where necessary and with sufficient strength and rigidity to permit easy, efficient application to the roof.

Whatever *your* insulating problems may be, FOAMGLAS is the ideal answer. This strong, stay-dry insulation guarantees efficient insulating service plus unique design advantages. Let us send you our new booklets describing the use of FOAMGLAS to insulate roofs, walls, floors, ceilings, piping or equipment in normal or low temperature buildings. Use the coupon now.

PITTSBURGH CORNING CORPORATION
One Gateway Center • Pittsburgh 22, Pa.

FOAMGLAS®

the cellular, stay-dry insulation

Pittsburgh Corning also makes PC Glass Blocks

Pittsburgh Corning Corporation, Dept. K-24
One Gateway Center, Pittsburgh 22, Pa.

Please send me a free sample and the following brand new FOAMGLAS literature:

- ☐ New booklet on FOAMGLAS building insulation.
- ☐ New booklet on FOAMGLAS low temperature insulation.
- ☐ New folder on FOAMGLAS pipe insulation.
- ☐ New folder on FOAMGLAS insulation for tanks and other equipment.
- ☐ Send engineer to discuss specific problem.

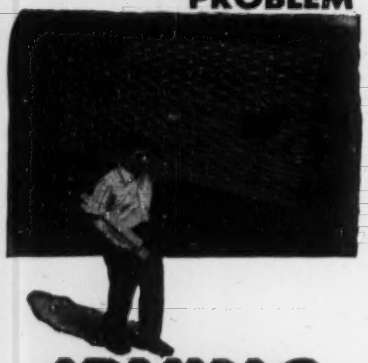
Name _____

Company _____ Title _____

Address _____

City _____ Zone ____ State _____

ENGINEER
WITH A
WEIGHTY
PROBLEM



IRVING
ALUMINUM
GRATING

Irving Aluminum Grating is the solution where
STRENGTH
and VERY
LIGHT WEIGHT
are wanted.

RUST PROOF

SPARK PROOF
quality of aluminum grating makes it perfect for use in Petro-Chemical Industries

For Further Information on Irving Gratings, Write

IRVING SUBWAY GRATING CO., INC.
ESTABLISHED 1902

OFFICES and PLANTS at

27th St., Long Island City 1, N. Y.
10th St., Oakland 20, California

READER COMMENT

sound engineering practice, ordinances or regulations (codes).

The insurance companies intervene only as far as the backing of financial responsibilities incurred jointly by the architect and contractor according to the provisions of the French National Civil Code—provided that the various phases of design and construction are checked or submitted to inspection, and that every working drawing or construction operation is duly approved by the "bureaux de controle."

At the termination of the construction phases (generally including structural, roofing, plumbing, electrical and mechanical sections of the job) a certificate is delivered by the "bureaux de controle" which signifies to the owner that, for ten years hence, the expense of any repairs of a damage, which can be traced to an original defect of the initial work, will be covered by the insurance policy.

G. L. Blanchard
Intercontinental Technical Enterprises, Inc.
Chicago, Illinois

CALENDAR

National Ready-Mixed Concrete Association and the National Sand & Gravel Association, Conrad Hilton Hotel, Chicago, Feb. 15-19.
N. J. section American Water Works Association, winter meeting, Essex House, Newark, N. J., Feb. 16.
American Society of Civil Engineers, Hotel Biltmore, Atlanta, Ga., Feb. 17-19.
Northwest conference on road building, University of Washington, Seattle, Feb. 17-19.
National Society of Professional Engineers, Hilton Hotel, Albuquerque, N. M., Feb. 19-20.
National Crushed Stone Association, Conrad Hilton Hotel, Chicago, Feb. 22-24.
Highway Engineering Conference, University of Colorado, Boulder, Feb. 25-26.
American Concrete Institute, Golden Anniversary Convention, Shirley-Savoy Hotel, Denver, Colo., Feb. 22-25.
American Concrete Pipe Association annual convention, Fairmont Hotel, San Francisco, Calif., Feb. 25-27.
Associated General Contractors of America, Hotel Statler, Los Angeles, Calif., March 1-4.
Illinois Highway Engineering Conference, University of Illinois, Urbana, March 2-4.
N. Y. State Association of Highway Engineers, Arlington Hotel, Binghampton, N. Y., March 3-5.
N. J. Sewage & Industrial Wastes Assn., Traymore Hotel, Atlantic City, N. J., March 10-12.
Association of Highway Officials of the North Atlantic States, Hotel Shoreham, Washington, D. C., March 10-12.
American Railway Engineering Association, Palmer House, Chicago, March 16-18.
Southern Municipal and Industrial Wastes Conference, N. C., State College, Raleigh, N. C., March 18-19.
American Congress on Surveying and Mapping, annual meeting and exhibit, Hotel Shoreham, Washington, D. C., March 22-24.
Rail Steel Bar Association, annual meeting, Jung Hotel, New Orleans, La., March 24-26.
Southeastern section AWWA, Poinsett Hotel, Greenville, S. C., March 29-31.

YOU GET 3
KEY ADVANTAGES WITH...
FIR PLYWOOD
CONCRETE FORMS

1 TIME AND LABOR SAVINGS
Fir plywood forms speed form construction, erection and stripping by up to 25%.

2 SMOOTH CONCRETE
Fir plywood formed concrete is smooth, fin-free. Requires less rubbing. Ceilings can be painted direct after a minimum of finishing—eliminating plastering.

3 MAXIMUM RE-USE
Interior PlyForm gives several re-uses, up to 12-15 not unusual . . . over twice as many re-uses with Exterior PlyForm and overlaid panels. Plan and build forms for long service.

SPECIFY BY DFPA GRADE-TRADEMARKS
These grade-trademarks identify quality panels made expressly for form work. 1. Interior PlyForm (moisture-resistant glue) for multiple re-use; 2. Exterior PlyForm (100% waterproof glue) for maximum re-use; 3. Overlaid (hardboard or hard, resin-fiber surface) Exterior plywood for maximum re-use plus smoothest concrete.

PLYFORM
PLYFORM EXT DFPA

® Douglas Fir Plywood Assn., Tacoma, Wn.

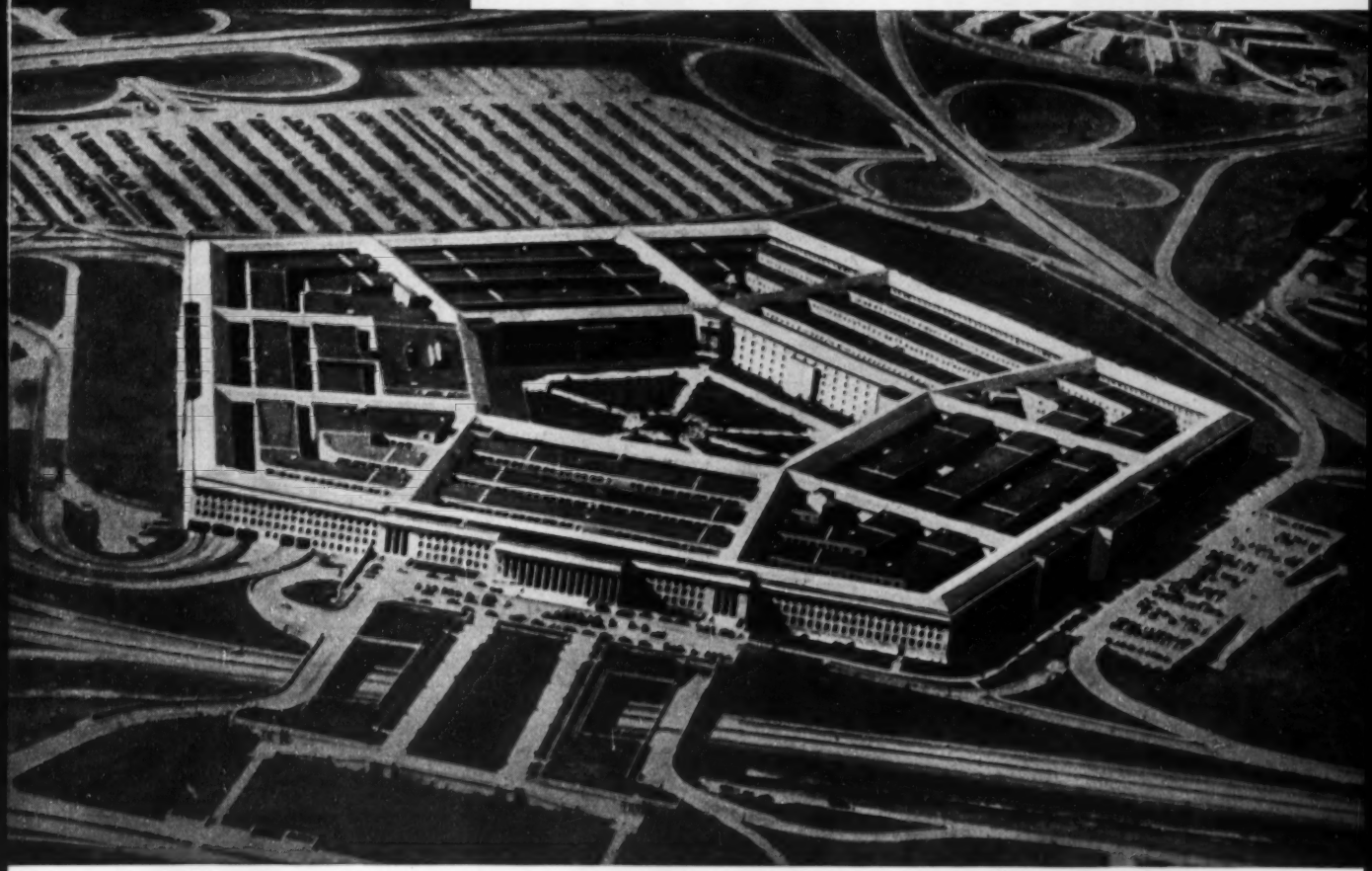
DFPA GRADE-MARKED
Fir Plywood Industry Product

Raymond Features!

NUMBER FOUR OF A SERIES

Raymond Piles

HAVE UNIFORM BEARING CAPACITY



THE PENTAGON IN WASHINGTON rests on over 43,000 Raymond Piles varying in length from 16 to 58 feet, all of uniform bearing capacity.

Because Raymond Concrete Pile shells are available in 4, 8 and 12-foot sections, they may be driven to the proper depth to obtain a uniform bearing capacity regardless of the variations in soil conditions. This flexibility also saves time and money by eliminating delays in driving test piles to pre-determine length.

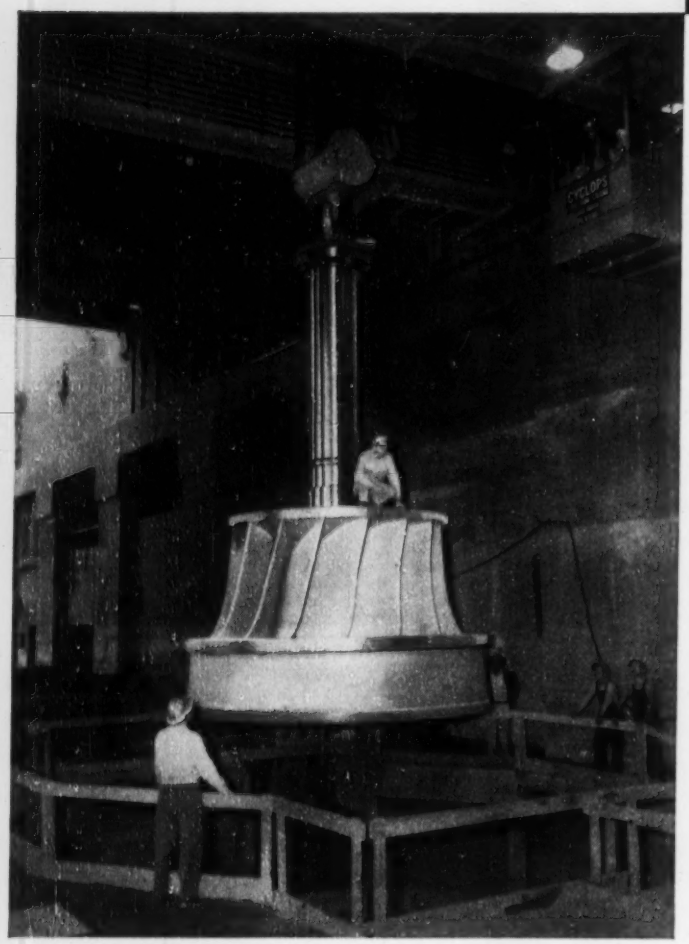
Raymond
CONCRETE PILE CO.
140 CEDAR STREET • NEW YORK 6, N. Y.

Branch Offices in the Principal Cities of United States and Central and South America

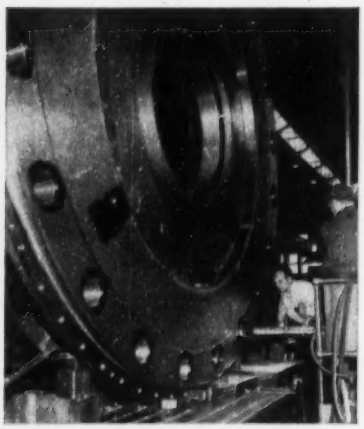
THE SCOPE OF RAYMOND'S ACTIVITIES . . . SOIL INVESTIGATIONS . . . FOUNDATION CONSTRUCTION . . . HARBOR AND WATERFRONT IMPROVEMENTS . . . PRESTRESSED CONCRETE CONSTRUCTION . . . CEMENT-MORTAR IN-PLACE LINING OF WATER, OIL AND GAS PIPELINES

FOUR 17,000 HORSEPOWER BALDWIN FRANCIS TYPE TURBINES INSTALLED AT FORT GIBSON

FORT GIBSON DAM—This view shows (center of photo) the powerhouse in which these turbines are installed.



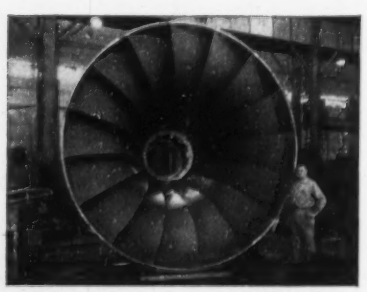
BALDWIN FRANCIS TYPE TURBINE RUNNER AND SHAFT shown above being lowered into position at Fort Gibson. The total weight of these two parts is 110,400 pounds.



TURBINE MANUFACTURING requires lots of big, precise machine tools to handle the machining of large head covers such as the ones used at Fort Gibson.

THE HEAD COVER, MAIN BEARING AND MAIN SHAFT are shown in the above photo. The workers are busy positioning the guide bearing.

One of the foremost in the design and manufacturing of hydraulic turbines for over 100 years, Baldwin-Lima-Hamilton, together with its subsidiary, the Pelton Water Wheel Company, is among the few firms in the country with the facilities and experience required to produce such important equipment.



DISCHARGE END OF THE RUNNER is shown in this shop view prior to being shipped to the powerhouse site.

BALDWIN-LIMA-HAMILTON

Philadelphia 42, Pa. • Offices in Principal Cities

BALDWIN BLH LIMA-HAMILTON

Rolling Steel Doors

Manually, Mechanically, or Electrically Operated

An electrically operated rolling steel door meets present-day requirements more fully than any other type of door. The quick-opening, quick-closing, vertical roll-up action of a rolling steel door requires no usable space either inside or outside the door opening . . . there are no overhead tracks or other obstructions to interfere with crane operations—materials can be stacked within a few inches of the door curtain on either side. No other type of door offers these inherent advantages of space economy and compactness in operation . . . in addition, rolling steel doors are permanent—their all-metal construction assures a lifetime of trouble-free service and maximum protection against intrusion and fire. When you select a rolling steel door, check specifications carefully . . . you will find many extra-value features in Mahon doors—for instance, the galvanized steel material, from which the interlocking curtain slats are rolled, is chemically cleaned, phosphated, and treated with a chromic acid solution to provide paint bond, and, the protective coating of synthetic enamel is baked on at 350° F. prior to roll-forming. You will find other materials and design features in Mahon doors that add up to a greater over-all dollar value. See Sweet's Files for complete information including Specifications, or write for Catalog G-54.

THE R. C. MAHON COMPANY

Detroit 34, Michigan • Chicago 4, Illinois • Representatives in all Principal Cities

Manufacturers of Rolling Steel Doors, Grilles, and Automatic Closing Underwriters' Labeled Rolling Steel Doors and Fire Shutters; Insulated Metal Walls and Wall Panels; Steel Deck for Roofs, Partitions, and Permanent Concrete Floor Forms.

ROLLING STEEL DOORS, SHUTTERS AND GRILLES TO MEET EVERY REQUIREMENT

MAHON

New Chevrolet Trucks for '54

Loaded with brand-new advantages you need and want!

You'll get more work done in less time and at lower cost with new '54 Chevrolet trucks on the job. They bring you more new features . . . more big new advantages than any other truck on the road.

For example, you get new engine power in all models. The advanced "Thriftmaster 235" engine combines bigger displacement and higher compression with other new features to give you greater power and finer performance. The rugged "Loadmaster 235" engine offers increased strength and stamina for heavier trucking operations. The all-new "Jobmaster 261" engine* brings you extra reserves of high-compression power for hauling big loads on schedule.

In addition, you enjoy new and even greater operating economy. All three 1954 Chevrolet truck engines bring you the full benefit of thrifty high-compression power.

And there are many, many more new things you'll like about these great new Chevrolet trucks. New, roomier pickup and stake bodies let you haul more . . . save you time and extra trips. And they're set lower to the ground for easier loading and unloading. New truck Hydra-Matic transmission* lets you drive all day without shifting. It's offered not only on ½- and ¾-ton Chevrolet trucks, but on 1-ton models, too. New Comfortmaster cab with one-piece curved windshield and amazing new Ride Control Seat* offers the last word in comfort, convenience and safety.

Plan now to see your Chevrolet dealer and get all the facts about the new Chevrolet trucks for '54. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

Most trustworthy trucks on any job!

CHEVROLET

ADVANCE-DESIGN TRUCKS

CHEVROLET ADVANCE-DESIGN TRUCK FEATURES

THREE GREAT ENGINES—The new "Jobmaster 261" engine* for extra heavy hauling. The "Thriftmaster 235" or "Loadmaster 235" for light-, medium- and heavy-duty hauling. **NEW TRUCK HYDRA-MATIC TRANSMISSION***—offered on ½-, ¾- and 1-ton models. Heavy-Duty **SYNCHRO-MESH TRANSMISSION**—for fast, smooth shifting. **DIAPHRAGM SPRING CLUTCH**—improved-action engagement. **HYPOID REAR AXLE**—for longer life on all models. **TORQUE-ACTION BRAKES**—on all wheels on light- and medium-duty models. **TWIN-ACTION REAR WHEEL BRAKES**—on heavy-duty models. **DUAL-SHOE PARKING BRAKE**—greater holding ability on heavy-duty models. **NEW RIDE CONTROL SEAT*** eliminates backrubbing. **NEW, LARGER UNIT-DESIGNED PICKUP AND PLATFORM STAKE BODIES**—give increased load space. **COMFORTMASTER CAB**—offers greater comfort, convenience and safety. **PANORAMIC WINDSHIELD**—for increased driver vision. **WIDE-BASE WHEELS**—for increased tire mileage. **BALL-GEAR STEERING**—easier, safer handling. **ADVANCE-DESIGN STYLING**—rugged, handsome appearance.

**Optional at extra cost. Ride Control Seat is available on all cab models. "Jobmaster 261" engine on 2-ton models; truck Hydra-Matic transmission on ½-, ¾- and 1-ton models.*

MORE CHEVROLET TRUCKS IN USE THAN ANY OTHER MAKE!

Lithographed on stone for U. S. Pipe and Foundry Co. by John A. Noble, A. N. A.

THIS ILLUSTRATION showing the installation of U. S. mechanical joint pipe in a residential area is a typical scene. It could be either a water, gas or sewer line installed to furnish reliable utility service for present and future generations in the community.

U. S. cast iron pipe centrifugally cast in metal molds is a quality product produced by a modern casting process which is carefully controlled from raw material to the finished pipe.

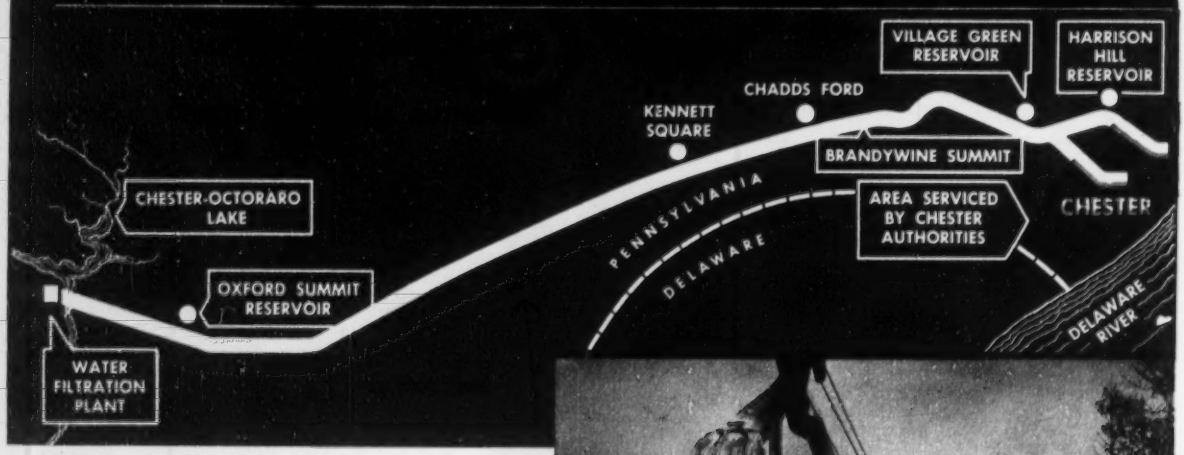
We are well equipped to furnish your requirements for cast iron pipe and fittings made in accordance with American Standard, American Water Works Association and Federal specifications. U. S. pipe centrifugally cast in metal molds is available in sizes 2- to 24-inch and pit cast pipe in the larger sizes.

United States Pipe and Foundry Co.,
General Office, 3300 First Ave., N. • Birmingham 2, Ala.
Plants and Sales Offices Throughout the U. S. A.

U.S.
cast iron
PIPE
FOR WATER, GAS, REFRIGERATION AND INDUSTRIAL SERVICES

a 44 mile LOCK JOINT pipeline

...with a Hazen-Williams "C" of 150



IN TESTS on 233,000 feet of 24", 30", 36", 42" and 48" Lock Joint Prestressed Concrete Cylinder Pipe in Chester, Pa. the eminent hydraulist, F. C. Scobey, found a coefficient of 150. This gives the city a premium capacity of 11%. Leakage was a mere 12% of the maximum allowed by the Consulting Engineers. Thus Chester enjoys greater capacity with far less waste than the city anticipated—truly premium performance in every sense. For similar trouble-free operations, let Lock Joint supply your needs in pressure pipe 16" and larger.

▲ *Laying a section of the 48" pipe for the Chester Water Supply Main*

SCOPE OF SERVICES—*Lock Joint Pipe Company specializes in the manufacture of Reinforced Concrete Pressure Pipe for Water Supply and Distribution Mains 16" in diameter or larger, as well as Concrete Pipes of all types for Sanitary Sewers, Storm Drains, Culverts and Subaqueous Lines.*

LOCK JOINT PIPE COMPANY

Established 1905

P. O. Box 269, East Orange, N. J.

PRESSURE PIPE PLANTS: Wharton, N. J., Turner, Kan., Detroit, Mich., Columbia, S. C.

SEWER & CULVERT PIPE PLANTS:

Casper, Wyo. • Cheyenne, Wyo. • Denver, Col. • Kansas City, Mo. • Kennett Square, Pa. • Valley Park, Mo. • Chicago, Ill. • Rock Island, Ill. • Wichita, Kan. Kenilworth, N. J. • Hartford, Conn. • Tucumcari, N. Mex. • Oklahoma City, Okla. Tulsa, Okla. • Beloit, Wis. • Hato Rey, P. R. • Ponce, P. R. • Caracas, Venezuela

LOCK JOINT
Reinforced Concrete
PRESSURE PIPE

Vol. 152, No. 6

NATIONAL AFFAIRS

Contractor-labor cooperation aimed at cutting cost 21
Equipment distributors talk shop in New York 23
St. Lawrence Seaway outlook brightens 23
Indiana toll road: 17 engineering firms assigned sections of the 156-mi turnpike 24
Moles honor New York, Dayton men 24
N. Y. Thruway to cost $300 million more 25
Arkansas survey rules out toll roads 25
Washington, D. C., will woo engineering societies 25
New plan filed for New Orleans bridge 26
Ohio highway contract signed by mail order firm 26
House bill authorizes Santa Maria project for California 26
Federal highway measures expected to get favorable congressional action 27
School needs 27
Niagara-public versus private power 28

FEATURES

Fast work planned on Ohio Turnpike 32
Welding a tall building to take high wind loads 38
Single hydro project doubles Morocco's power 42

MUNICIPAL

All-weather landing lights installed at Denver's airport 46

INTERNATIONAL

Government offices share Dublin bus terminal 49

BUSINESS AND FINANCE

Plenty of public works: a bond market preview 58
Tight-rope artist: How to manage the debt without hurting construction 58
General Motors gives details on $1-billion spending plan 58
FNMA climbs out: Better mortgage market helps Fanny Mae's sales 59
MC&S has record profits; backlog climbs during 1953 59
Activity this week 59

NEW PRODUCTS

Allison's new device gives brakes a break 71
Contraction joint sawing time cut 71
Fire fighting sprinkler douses larger area 77
Saddle offers protection against sling chafing 77
Publications 78

Reader Comment 6
Calendar 10
Washington Observer 19
Engineering News-Pictures 30
Obituaries 50
Construction Reports 51
Unit Prices 57
Editorials 80

THE CONSTRUCTION WEEK

TAX WAR—Ohio's growing troubles with its own citizens and with neighboring states over a new axle-tax on trucks (ENR Jan 28, p. 17) have flared into something closer to open warfare.

The state of Kentucky set up a 24-hr-per-day vigil at a former toll bridge linking the two states near Ironton, Ohio; installed a tax department agent, and stopped all trucks to be sure they had obtained Kentucky weight licenses. Like nine other southern states, Kentucky previously had established reciprocity with Ohio on truck licensing, and had announced its intention of renouncing the agreement when Ohio puts its new tax into law.

And to add to the general woe, a spokesman for the Ohio trucking association said "many" member firms already are preparing to move out of the state, rather than to pay for what they called a "punitive war" occasioned by the tax.

NO OBJECTIONS—Army Engineers have withdrawn their long-standing objections to development of the Priest Rapids Dam in Washington by a group of Washington state public utility districts.

Reason: Legislation before Congress to permit the proposed PUD project now sufficiently safeguards national interests.

HELP OFFERED—And Northwest PUDs were offered monetary help from private industry: The Aluminum Company of America said it would be glad to work with the utility districts, or with private utilities to investigate opportunities to build hydro projects in the Pacific Northwest.

Alcoa financed construction of an addition to Puget Sound Power & Light's Rock Island Dam on the Columbia River (in the Chelan County Public Utility District) in order to obtain power for its new reduction plant near Wenatchee.

THE WEATHER—Here's the U. S. Weather Bureau's 30-day forecast for the month of February (to be read with tables published in ENR Jan. 28, p. 38):

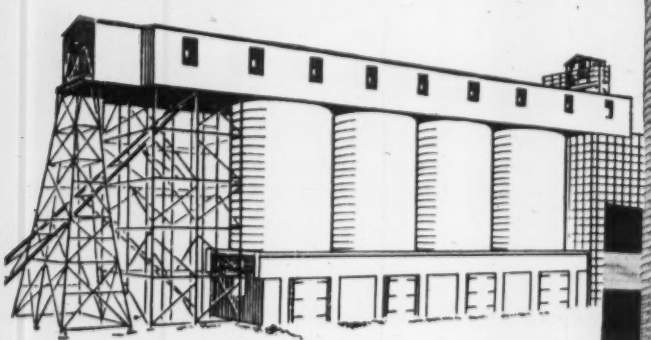
Temperatures will average above seasonal normals over the western half of the country, but below normal east of the Mississippi. The Northeast is expected to be the area of greatest unseasonable coldness.

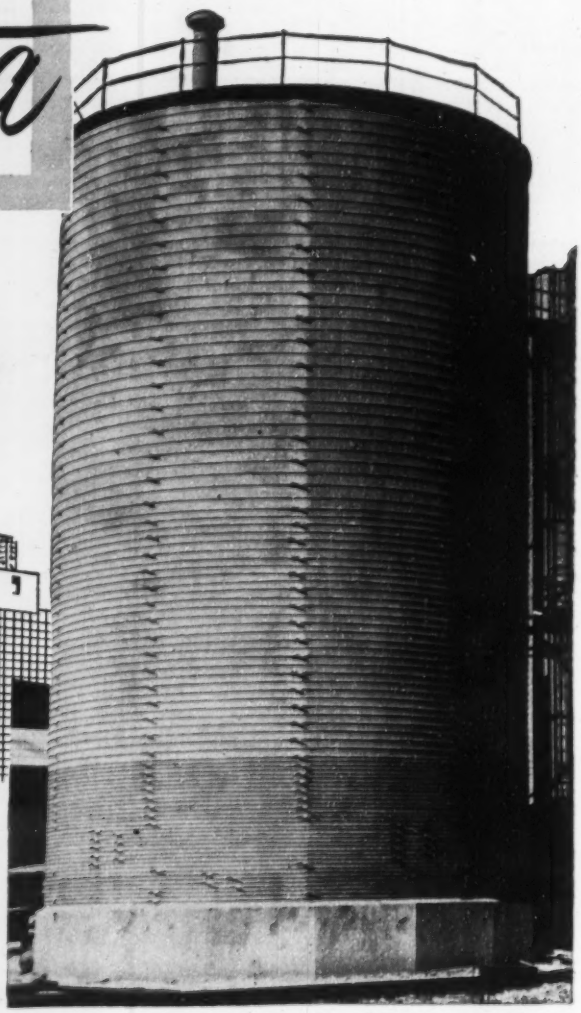
Precipitation is expected to exceed normal over the Gulf states and along the Atlantic seaboard—much of it snow from Virginia northward. Subnormal precipitation is indicated over the remainder of the northern half of the U. S., except for near-normal in the Great Lakes region. In areas not specified, normal amounts of precipitation are predicted.

Marietta

GREATEST NAME IN SILOS

lets you think in YEARS-AHEAD terms!





From foundation to roof, a Marietta Concrete Storage System is adaptable to every type of materials-handling.

Marietta engineers, thinking in years-ahead terms, have long recognized the unpredictability of the future as an important factor permanently tied to the apron strings of industry. Constructive thinking, in the past, with particular attention to this factor, has resulted in the production of modern storage systems purposely designed for immediate conversion or expansion without imposing penalties to meet any need.

There is no limit to the equipment that can be incorporated into a Marietta silo wall, roof or floor. A flexible Marietta Silo will accommodate any discharge system.

Concrete silos erected during 1916, the year Marietta ventured into the industrial storage system business, are in useful operation today, standing as undeniable tributes to the wisdom, integrity and engineering prowess which have always been fundamental characteristics of The Marietta Concrete Corporation.

Whatever you store or handle, you'll be money ahead with a complete Marietta Concrete Storage System. Write today for particulars. Catalog upon request.

THE Marietta CONCRETE CORPORATION

MARIETTA, OHIO

BRANCH OFFICES

501 Fifth Ave., New York 17, N. Y. — Hollywood, Florida — Pulaski Hwy. at Race Rd., Baltimore 21, Md.

805 Bessemer Bldg., Pittsburgh 22, Pa. — Box 1575, Charlotte, N. C.

PRECAST CONCRETE PRODUCTS FOR FARM, HOME AND INDUSTRY

WASHINGTON OBSERVER

Construction activity stays high—but Democrats are scoring with recession talk. New construction put in place during January was at near-record levels, the Department of Commerce reports—a 3% increase over January a year ago.

But the real political battle is brewing over unemployment. The hearings of the joint committee on the economic report (continuing this week) have been the first arena for that fight. Economists from business and government are being heard by the joint committee to explore the health of the economy.

Up to now, Republicans have tended to downgrade the joint committee—but fear of handing the Democrats political capital has forced GOP leaders to schedule the week-long hearings now under way. **They don't want to be** charged with failing to follow the Employment Act of 1946—passed to create the government machinery for avoiding recessions.

•

Government experts back up the point that unemployment is growing. This has been obscured behind all the hullabaloo over exactly how many people are now looking for work. Actually, employment, wages, and working hours seem to be heading fast for the levels reached during the 1949 "recession."

But it puts the spotlight on such problems as cutting building costs (see page 21) and is likely to bring construction industry leaders and building trades bosses together to thresh out some answers. Both sides agree present costs are inflated—but it remains to be seen where joint industry-labor cost cutting would take hold. Industry men would welcome any plan which would trim payrolls by dropping "make work" practices.

At AFL meetings in Miami, jurisdictional strike problems—a costly item—are getting a going-over. Rival union chiefs are sweating out plans designed to settle work assignments on a peaceful basis.

•

A quarterly census sample of the "fix-up" market is being urged on Commerce Dept. Construction industry spokesmen hope to talk Secretary Weeks into asking Congress for funds to start a 25,000 sample this year. The industry wants better reporting on repair and modernization of homes, commercial establishments and industry; on vacancies, conversions and demolitions.

•

The tug-of-war over Echo Park Dam in the upper Colorado water storage project is about over—and proponents are confident they'll win. Recent hearings indicate House Interior Committee members aren't buying the complaints of conservationists that construction of the dam would ruin the Dinosaur Monument. The omnibus upper Colorado project now seems assured of committee approval, but may get bogged down in the House or Senate.

•

Look for a continuing asphalt vs. concrete controversy in new air base construction. The Air Force's new criterion for awarding new construction projects—favoring Portland cement if a combination asphalt-concrete bid is only 5% or less below an all-concrete bid—started renewed opposition from asphalt sellers and oil-states congressmen. Congressional hearings last week, in which government experts and spokesmen for the two industries testified, will form the basis for legislative language in future authorization bills.

•

Pro-TVA Democrats are up in arms over talk of naming Harry C. Carbaugh of Chattanooga, a Republican money raiser, to succeed Gordon Clapp as TVA chairman this spring. Carbaugh, a businessman, has the backing of GOP state chairman Guy Smith of Tennessee. But if Eisenhower names him, he will be in for a stiff confirmation fight.

the biggest part of a HENDRIX BUCKET is its...

Payload!

A TYPE AND SIZE FOR EVERY DIGGING PURPOSE

3/8 to 40 Cubic Yards

Hendrix Lightweight DRAGLINE BUCKETS

Hendrix Buckets available without perforations on special order.

HENDRIX MANUFACTURING CO., Inc.

MANSFIELD, LOUISIANA

Photo by Bloom

Construction union chiefs, gathered in Florida, reflect wide feeling that . . .

This may be the year to cut labor costs

An ENR staff report

Prodded by economic necessity, construction labor and management are getting ready for serious efforts—some joint, some unilateral—to pare construction costs.

A spot survey by ENGINEERING NEWS-RECORD reporters this week turned up ample evidence of worry on both sides of the construction fence—more importantly, it showed the prevalence of grass-roots support for moves to offset rising costs lest business (and with it employment) drop dangerously.

Not surprisingly, obvious trial statements by American Federation of Labor building trades leaders aimed at contractor-labor cooperation were gaining snowballing support. Employer and labor groups voiced approval ranging from enthusiasm to guarded optimism.

It seems clear, as this week opened, that construction could look for something concrete in the way of machinery to settle jurisdictional disputes and for a more moderate approach to wage negotiations and the use of new materials and methods.

• **"Why the worry?"**—The general anxiety can be broken down into several areas of concern:

• Employment, always at its lowest during the winter, is lower than it was last winter. Contractors and building union spokesmen alike are fearful of a spring slump in many areas.

• Encroachment by non-union and force-account labor in the construction field has been growing.

• Successes of new building materials and methods have been bothering several trades.

• **Time to think**—Almost everyone in construction has been too busy during the last two years to indulge in much self-examination. Now—with a good year, but no building record in sight for 1954—leaders of labor and of contractor groups are starting to root around for ways to keep themselves competitive.

For most contractors—on the local level—the immediate course seemed to be to get tough with construction union locals in negotiations. There was a belief among contractors in many cities covered in the ENR survey that economic conditions would allow them to stand off demands for big pay increases and fringe benefits.

Labor leaders—on the local level—showed concern over rising unemployment, and in some areas "share-the-misery" arrangements were already being planned to spread available work among as many tradesmen as possible. Hold-the-line contracts were being negotiated in several areas.

• **Prophecy**—There was more substance in early reports from the Miami Beach sessions of top men in the AFL Building and Construction Trades Department than most wanted to admit. A conversation in a Miami Beach swimming pool became a news story on the front page of the New York Times, and most bigwigs of both the unions and contractor groups have been trying for a week to sidestep the issue.

The time has come, so the story went, to take joint contractor-labor steps to cut rising costs in construction, to eliminate practices—managerial as well as labor—which have resulted in waste of time and money.

Most contractor groups—from the Associated General Contractors to the specialty groups—adopted a wait-and-see attitude to the reported eagerness of the building trades to streamline practices. For one thing, no group is anxious to admit guilt for methods that push costs up. Clearly, however, a lot of hair has to be let down before words become dollars saved, and one group—National Constructors Assn.—said it was ready to do its part.

The NCA, through its new president, John O'Connell, labor relations expert for Bechtel Corp., told ENR it

LABOR SECRETARY JAMES MITCHELL chats with predecessor Martin Durkin at AFL building trades session in Florida.

HARD HIT by work falloff in switch to dry-wall construction, leaders of plasterers union discuss future.

had reached tentative agreement with the building trades to meet in March to get started with cost-cutting.

• **Peace in the family**—Since last summer an AFL committee has been working up a plan to prevent and settle jurisdictional disputes. The cost and unpopularity of work assignment struggles are readily admitted, and the AFL has become increasingly worried about the trouble.

A plan, approved by the building trades chiefs and being pushed by most of the members of the AFL executive council, calls for a five-man "court" which would be the supreme say-so in matters jurisdictional. Only big stumbling block to such a plan has been Dave Beck, president of the Teamsters, who seems determined to push his jurisdiction to as yet undefined limits.

• **Wage rise?**—With the bulk of contract negotiations between construction labor and management two to three months ahead, some early forecasts can be made on wage settlements.

Just now the picture is misty, and only general outlines can be seen. A prediction, based an ENR's surveys, and hedged suitably, would be:

• A probable average increase for all building trades of 7½ cents per hour. Many of the rises will be face-savers, involving rounding off odd pennies. Many will be fringe benefits, and in man areas there'll be no increase.

• **Keeping AFL competitive**—Anxiety about the rise of non-union and force-account construction labor has been increasing for some time. With jobs tightening up the building unions have been eyeing the expanding home-building labor force, most of which is non-union.

Force-account work, especially by railroads using maintenance-of-way workers for new construction, and by a few major industrial firms, using CIO plant workers for construction, is pushed into the front by the scramble for work. And in the coal fields of the East, there's competition for work between the AFL building unions and the United Construction Workers of District 50, United Mine Workers.

The building trades may feel they can benefit by creating a favorable climate of contractor opinion within which the unions and employers can cooperate to keep work out of non-union or "wrong-union" hands.

Here's the picture on the bargaining fronts of the nation:

• **The West**—In the western third of the nation, there was a definite downturn in construction employment, especially in trades where substitute materials have been adopted. Bricklayers and plasterers were most affected. In Washington, bricklayers asked no pay rise for the second straight year. In Sacramento, Calif., plasterers cut their work day from eight to six hours.

In San Francisco and Los Angeles there was guarded concern about unemployment. The Alameda Building Trades Council has been talking of reducing the work week if the spring upswing doesn't occur.

In Albuquerque, N. M., a surplus of construction labor, gathered to build military bases, is expected to be absorbed in part by spurting home and highway building.

East of the Rockies, there was grave concern about force-account inroads, and United Construction Worker "poaching" was disturbing AFL craftsmen. Plasterers and bricklayers in Salt Lake City were feeling a serious downturn in demand for their services.

Denver construction people were not worried by the slackening of projects. There was no immediate talk of spread-the-work measures, and the unions were feeling little competition.

• **The East**—Throughout the East contractors, singly and in employer groups, were beginning to sense sufficient anxiety in labor to warrant a get-tough attitude in upcoming negotiations. In Detroit, Cleveland, and Syracuse this feeling was rising. Unions, watching the labor market shrink, showed early acceptance of token pay increases or none at all. As in the West, bricklayers and plasterers—faced with panel and dry-wall growth—held the pay line.

In Florida, however, where trowel trades flourish, the shoe was on the other foot. Bricklayers—certain of big government jobs—were set to demand big pay boosts.

• **The Midwest**—The labor pattern varied from city to city. In St. Louis—where building unions were smarting from exposures of racketeering and public claims of restrictive practices—there was acclaim of cost-cutting efforts, and a solemn admonition that management must do its part. So far, steamfitters alone among the St. Louis building unions have asked for more pay.

In Des Moines, Iowa, talk centered about moderate pay increases and, at all costs, an avoidance of last summer's expensive construction strike. In Chicago it was evident that, if there are pay increases, they'll be fairly small. Texas construction unions appeared likely to settle for small boosts—or none in some trades.

In Omaha, Neb., both labor and employers agreed the construction picture looks good, with wage jumps probable.

Equipment distributors meet

Members of the AED held their 35th annual convention in New York; the general feeling—tempered pessimism

Stanley C. Jensen
Assistant Editor

Last week, more than 2,800 members of the Associated Equipment Distributors distributed themselves through a half-dozen New York hotels. For five days they talked about a business they believed would hold its own for the next year, or at worst decline about 5%.

The sales picture, they agreed, was not excessively bright, but they also agreed that there's more than one way to skin a cat or sell one—and this is what they talked about. Sometimes the talk was in open business sessions; more often the scene was a hotel room.

• **Unique among conventions**—Unlike the annual meetings of many associations, AED conventions are things unto themselves. From all over the U. S. and Canada, distributors come to talk with their suppliers about themselves. As an industry, equipment distribution has few overall general problems that can be solved through joint effort under the present setup. No lengthy papers are read.

What the distributors look for is an opportunity to discuss the individual problems of their area with the manufacturers and a chance to add new product names to their lines. The manufacturers, of course, are seeking to make their distribution family a happy one and at the same time are looking for new, responsible outlets.

The end result is an appearance of complete disorganization—a convention made up of "hospitality suites" and room service. It's only at the formal business sessions that the general flavor becomes more like a convention.

• **Free service scored**—On Tuesday, Dr. Charles Reitel and his assistant, C. J. Minnich, Jr., both of the management consultant firm of Stevenson, Jordan & Harrison, leveled some criticism at free service policies. According to them, the wide variation in the amount of free service offered by distributors indicates an unprofitable lack of coordination, not only among distributors but, worse, between distributors and their suppliers.

The lack of a thorough understanding between distributor and manufacturer as to their individual responsibilities during a given period of warranty has led in many cases to substantial losses on the part of the distributor. It is thought that if warranties were written with the aid of the distributors much of the misunderstanding would disappear, and the warranty would represent a fair estimate of the amount of free service that should be offered on a particular item.

• **Trade-in dilemma debated**—The Thursday meeting featured a panel discussion moderated by Harold H. Maynard of Ohio State University. The panel members, representing four distributors and four manufacturers, gave their opinions on questions involving sales forecasts, rental-purchase plans, conditional sales, manufacturer mergers and warranty responsibility. But the question that seemed to arouse most interest was, "What plans are most successful in moving trade-ins?"

Rental-purchase plans and a slow new equipment market have loaded up distributors' yards with overpriced used equipment. Bonuses and other incentive plans for salesmen have had some effect, but there appears to be a strong opinion favoring the establishment of a "blue book" service similar to that employed by used car dealers.

Under this plan, average equipment prices would be reviewed periodically—about every three months—and a published summary sent to each participating distributor. The hoped for effect would be to curtail the overpricing of used equipment taken in on trade. In other words, it would serve as printed evidence to show a prospective purchaser the amount of allowance he should ask. Obviously the condition of the equipment must be considered as another factor, and this leads to one of the serious drawbacks of the plan.

It was stated that the "blue book" price might serve as a "floor" instead of an average price. In this circumstance, the purchaser might demand "blue book" value for overworked and nearly worthless equipment.

However, further discussion indicated that the average price list would be of assistance in financing used equipment purchases since it would give financing agencies an idea of equipment worth. It was decided that the idea should be submitted for committee consideration.

• **New officers installed**—George W. Gagel, president of the Machinery & Supplies Co., Inc., Kansas City, Mo., was inducted as the organization's president for 1954. His election follows several years of service in the association. During the last year he served as AED executive vice-president and was director of Region IX for two terms. During 1951, he was a member of several AED committees as also in 1948 and 1949.

Other new officers elected include: Ray J. Finn, Bode-Finn Co., Cincinnati, Ohio, executive vice-president; S. F. Laskey, Northwestern Equipment Co., Inc., Fargo, North Dakota, vice-president; L. Miner Doolen, Telford Equipment Co., Lansing, Michigan, vice-president; R. S. Hamilton, Sheridan Equipment Co., Ltd., Toronto, Canada, vice-president, and E. J. Fitzpatrick, Parker-Danner Co., Hyde Park, Mass., treasurer.

St. Lawrence Seaway outlook brightens

Congressional approval of the St. Lawrence Seaway was closer to becoming a reality this week than at any time in 40 years of consideration.

The controversial measure was quickly approved by the House Public Works Committee, after having been passed by the Senate, and moved on to the House Rules Committee for clearance for floor consideration.

Up until this week the Rules Committee was viewed as a major hurdle for the bill. Chairman Leo Allen of Illinois and other members are known to be against the controversial project.

But this week House Speaker Joe Martin predicted that the measure would be taken up in the House by March 1. Martin, himself a long-time opponent of the seaway, was expected to give the measure little help in getting through the House so that the sudden upturn in prospects for the bill is attributed to White House pressure.

Administration pressure, which has been put behind at least a half-dozen pieces of legislation so far this session, is handled very adroitly. It operates on a very personal basis, with Administration people, not too close to the White House, calling on close friends on Capitol Hill who are in a position to help the legislation along.

This kind of pressure was responsible for the Senate's speedy approval of the project in January, although the Senate had turned thumbs down on the measure four times previously. No St. Lawrence bill in the past has been reported out of committee in the House. Chairman George Dondero of Michigan, one of leading House backers of the measure, will lead the fight for House enactment. The bill was approved by his Public Works Committee by a vote of 23 to 6.

Indiana toll road

17 engineering firms assigned to 156-mi turnpike

Seventeen engineering firms will take part in the design and supervision of construction for the 156-mi, east-west Indiana toll road, it was learned this week. In addition, J. E. Greiner Co., Baltimore, continues as general consultant for the Indiana Toll Road Commission.

A four-lane concrete divided road across the northern edge of Indiana, the route will connect Chicago with the western terminus of the Ohio Turnpike. Together with a Pennsylvania-New Jersey Turnpike connection now partly under construction, the Indiana toll road will complete a continuous New York-Chicago toll highway.

Work is scheduled for late 1956 completion, the bulk of construction to take place in the 1955 and 1956 seasons. The Greiner Co. last October estimated construction cost at $176 million; other costs and contingencies took the total estimate to $240 million; in December 1953, the commission marketed $280 million in revenue bonds (ENR Dec. 24, 1953, p. 57). Earlier, Parsons, Brinckerhoff, Hall and Macdonald, New York consultants, had recommended toll charges beginning at $1.95 for passenger cars traveling the full distance; heavy trucks would pay as high as $13.16 (ENR Oct. 29, 1953, p. 23).

• **Eleven sections**—Design work is divided into eleven sections, with a subdivision in the section nearest Chicago. Extending through industrial Lake County, including the cities of East Chicago and Gary, this 20.3-mi section will cost $52 million.

• Sub-section No. 1A, covering $11 million of work in four contracts, will be handled by the Chicago firm of De Leuw, Cather & Co.

• Sub-section No. 1B, $41 million in eight contracts, is to be designed and administered by an association of the following: Richardson, Morehouse, Ramsey and Fisher, of Pittsburgh, Pa.; Moran, Proctor, Mueser and Rutledge, New York; and Harry A. Balke, Cincinnati, Ohio. This section includes the toll road's two major structures, one, a stretch of elevated roadway that includes a high-level crossing of the Indiana Harbor Canal, and the other an elevated structure over railroad tracks and streets in Gary.

Consultants for sections eastward across the state are as follows:

• Sect. 2, J. Stephen Wakins, Lexington, Ky., and Modjeski and Masters, Harrisburg, Pa. (4 contracts, 12.2 mi).

• Sect. 3, Hazelet and Erdal, Chicago (3 contracts, 13.4 mi).

• Sect. 4, Alfred Benesch & Assoc., Chicago (4 contracts, 14.9 mi).

• Sect. 5, Charles W. Cole & Son, South Bend, and Pierce & Gruber, Indianapolis (4 contracts, 14.3 mi).

• Sect. 6, Frank J. Kornacker & Assoc., Chicago (5 contracts, 15.2 mi).

• Sect. 7, Clyde E. Williams & Assoc., South Bend (5 contracts, 13.9 mi).

• Sect. 8, Vogt, Ivers, Seaman & Assoc., Cincinnati (4 contracts, 14.0 mi).

• Sect. 9, Hardesty & Hanover, New York, N. Y., and Andrews, Clark & Buckley, New York (6 contracts, 12.4 mi).

• Sect. 10, Brown and Blauvelt, New York (3 contracts, 13.1 mi).

• Sect. 11, W. H. McFarland, Binghamton, N. Y., (3 contracts, 12.4 mi).

It is expected that the first plans will be available late this summer, with construction to start in early fall. Contracts will continue to be awarded throughout next winter.

The main roadway will be of Portland cement concrete (4,500,000 sy), with shoulders and subordinate roadways of asphaltic material (3,440,000 sy). In addition to the major structures in Lake County there will be 10 stream crossings, 180 grade-separation structures and 61 box culverts.

There will be at least 11 interchanges, eight service areas and five maintenance areas. Design speed will be 80 mph, with maximum grades for the most part 2%.

Right-of-way, to cost about $10 million, will be acquired in 1,400 parcels. The engineering cost has been estimated at $16.2 million.

ENR photo by Compton

Glenway W. Maxon, Rear Adm. John R. Perry, and J. Rich Steers, left to right, principals at the annual Moles Award dinner.

Moles honor New York, Dayton men

J. Rich Steers of New York and Glenway W. Maxon of Dayton, Ohio, received the 14th annual Moles Awards last week at the organization's annual banquet in New York.

Rear Adm. John R. Perry, new Chief of the Navy's Bureau of Yards and Docks, was the principal speaker. Some 1,100 construction men witnessed the presentation of the prized awards for outstanding achievement in the field of heavy construction.

Mr. Steers has been president of J. Rich Steers since 1936. Among his principal achievements are: three large sections of New York's East River Drive built in the late '30s; the rebuilding of Shipways No. 2 in the Brooklyn Navy Yard early in the war; and since the war, the reconstruction of three main harbors and the Corinth Canal in Greece; Construction of Port Lyauty Naval base and Wheelus Air Force Base in North Africa, along with a radio high-frequency radio station at Tangier.

Glenway Maxon formed the Maxon Construction Co. in 1928. His work has included defense plants, inland shipyards, canals and dams, and installations for the Atomic Energy Commission. Mr. Maxon was cited particularly for his pioneer efforts in sharing company earnings with personnel, through a bonus system established in 1930 for all men from foreman up.

N. Y. Thruway to cost $300 million more

1950 estimate of $500 million—not founded on detailed plans and based on '49 costs—has proved inadequate

A New York Thruway cost-estimate increase—from $500 million to $800 million since 1949—will result in a "new financial plan" to be presented to the state legislature at its current session.

Although the nature of the plan was not stated in the authority's annual report issued last week, it would involve revenue bonds, either with or without state-credit backing. Another referendum would be required to get this credit support.

Inflated costs and unforeseen engineering difficulties are given as reasons for the increased estimate. The original estimate had been based on sparse data.

•Need funds for extensions—All but a few miles at the lower end of the 427-mi Buffalo-New York City portion of the Thruway system are built or under contract, for partial opening this year and full completion in 1955. Also authorized for the system and embodied in the original estimate are 128 mi of extensions.

On the basis of detailed plans, which are said to be in an advanced state now, these extensions are expected to cost $245 million. As the year 1953 ended, $523 million had been obligated, and the final cost of the Buffalo-New York section was expected to be $555 million.

Funds are available to cover this $555-million worth of work, the Thruway Authority having an $80-million state loan and revenue-bond authorization up to $500 million. Credit of the state of New York was placed behind this authorization in 1951 when voters approved a constitutional amendment extending the state's debt limit by the amount specified.

• '49 estimates not firm—The $500-million estimate, first cited in 1950 when the Thruway Authority was created, was based on 1949 construction costs, according to the authority's annual report. (The ENR Construction Cost Index has risen 28%—from 480 to 615—since 1949.) The report also notes that "the original estimate was arrived at without benefit of surveys, detailed plans or foundation information." Bertram D. Tallamy, Thruway Authority chairman, last week called the estimate merely an "informed opinion."

Thruway engineers give as examples of unforeseen difficulty the construction of foundations for a bridge across the Genesee River, near Rochester, and construction of a fill across Onondaga Outlet, near Syracuse. In the former example, special foundation work was required because of a shift in the riverbank. In the latter, expensive sand drains were required to speed the settlement of fill (ENR July 2, 1953, p. 38).

• Toll stretch to open in summer—Right-of-way costs, too, received a share of the blame. So far, about $45 million of the amount spent has gone for right-of-way. More than 95% of the property transactions have been settled without court-of-claims suits.

Construction during 1953 brought mileage completed, or lacking only occasional bridges, up to 188. The first toll section, a 110-mi stretch between points near Rochester and Syracuse, will be in operation this summer. By the end of the year, 400 mi between Buffalo and a point just west of the Hudson River are to be complete.

Extensions, to be "placed under contract rapidly when the necessary finances are available," include the following: New England extension, New York City to Connecticut line, 14 mi; Berkshire extension, Albany to Massachusetts line, 22 mi; Niagara extension, Buffalo to Niagara Falls, 20 mi; and Erie extension, Buffalo to a proposed Pennsylvania Turnpike extension, 72 mi.

Arkansas survey rules out toll roads

No highway in Arkansas has enough traffic to justify construction of a toll road.

This is the conclusion reached in a preliminary report by the University of Arkansas Engineering Experiment Station.

The survey, requested by the '53 session of the state legislature, covered the five routes bearing the state's heaviest through traffic. Routes studied parallel U. S. Highway 67 from Texarkana to Little Rock, U. S. 70 from Little Rock to West Memphis, U. S. 67 from Little Rock to Corning, U. S. 61 from a point near Gilmore to the Missouri state line, and U. S. 64 from Little Rock to Alma.

It was estimated that the proposed road from Little Rock to Texarkana would have an accumulated deficit of $19,061,000 by 1982, the end of a 25-year bond issue. Only glimmer of hope was for the Little Rock-West Memphis route, which the survey indicated could get into the black by 1977.

The traffic study was based on the 1952 volume and assumed an increase of 4% per year. Passenger car tolls were figured at 1.5 cents per mile and truck levies at 3.4 to 4.5 cents. Interest on 25-year bonds was figured at 3¾%.

A construction cost of $500,000 per mile was assumed. But, the report cautions that this should be considered a minimum figure. Requirements for major bridges and grade separations might put the cost over the half million dollar mark.

"Even if the estimated construction cost were reduced to $300,000 a mile for the Little Rock-West Memphis section, the estimated income would barely equal the estimated operating costs," the report declared.

It was noted that construction costs of other toll facilities, including purchase of rights-of-way, fencing, grade separations and bridges, have ranged from $432,000 per mile in Oklahoma to $2,161,000 a mile in New Jersey.

Despite the gloomy report, State Representative Marion H. Crank, author of the resolution calling for the study, seized on the figures for the Little Rock-West Memphis route to keep the issue alive. The Arkansas Legislative Council—interim legislative study group to which the report was submitted—plans to ask the Arkansas Highway Commission to hire a private engineering firm to analyze the report.

Washington, D. C., will woo engineering societies

Washington, D. C., last week initiated a community effort to persuade the major engineering societies to locate their proposed new headquarters building in the capital city. The Engineers Club of Washington teamed up with the Board of Trade, representing the city's business interests, to start the drive rolling.

Up to now, Washington efforts to land the new engineering center have been conducted on a quiet, confidential basis. A year ago, developers of a large Washington building project offered a free site for the proposed center. That offer was not acted upon, and its current status is in doubt.

Sponsors of the newly organized promotion campaign count on the active support of the D. C. government and all local engineering and architectural groups, as well as the business interests of the area. They realize that their proposal faces strong competition from the favorite, New York.

New plan filed for New Orleans bridge

A new application for a permit to construct a bridge across the Mississippi River at New Orleans has been filed with the Corps of Engineers by the Mississippi River Bridge Authority.

The application calls for a cantilever-type bridge with a 1,575-ft central span that would cross the river between Thalia St. in New Orleans on the east bank and Bringier St. in Algiers on the west bank.

The bridge would be constructed in lieu of one with an 1,800-ft span between Calliope St. in New Orleans and Lamarque St. in Algiers, for which a permit already has been granted (ENR July 16, 1953, p. 26; June 4, 1953, p. 23).

• **Greater clearance**—The new structure would have a vertical clearance of 170 ft above mean low water and 150 ft above high water with only one pier in the river 555 ft from the Dock Board's Thalia St. wharf (New Orleans side). There would be approximately 1,400 ft of horizontal clearance in the main channel.

A proposed anchor pier on the New Orleans side would be 853 ft from the river pier, which would place it shoreward of the Thalia St. wharf.

The pier at the Algiers end of the central span would be situated between the revetment and the levee, and the anchor pier would be on the land side of the levee 500 ft shoreward of the Algiers suspension pier.

Neville Levy, bridge authority chairman, said that the river pier at the Algiers end of the central span would be out of the river's navigable channel, "which we believe is an acceptable solution."

• **Original plan a dud**—The bridge authority, in filing its new application, said that the authority's engineers, Modjeski and Masters, had completed a study of plans for construction of the accepted 1,800-ft span and found that "the construction of the span, as set out in the present permit, is not feasible because of engineering difficulties and that the cost of the project is beyond the authority's financing capacity."

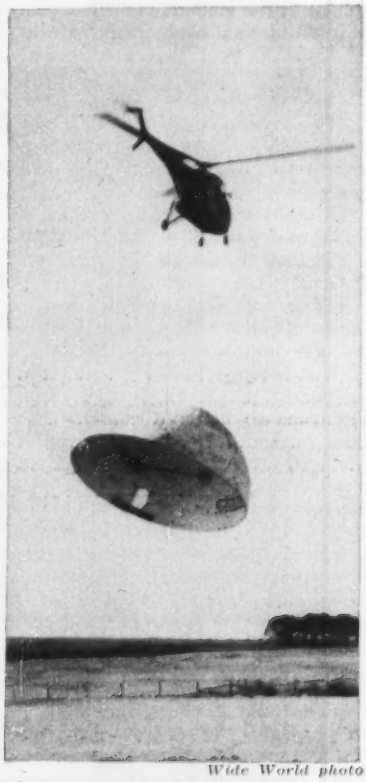
The authority reported that the estimates of Modjeski and Masters were that the cost of the longer span as planned would be at least $70 million. Levy said that financial experts estimate that $55 million, or at maximum, $60-million worth of bonds can be sold to finance construction.

He said that 17 studies of various types of bridges and tunnels had been made by Modjeski and Masters.

The authority has called in L. V. Sverdrup, president of Sverdrup and Parcel, consulting engineers of St. Louis, Mo., to check all layouts and costs involved and to help determine the maximum safety and navigability that can be obtained with available funds.

The authority, Levy said, met recently with representatives of the New Orleans Steamship Association and the Dock Board to discuss all designs, span lengths and costs.

Costs as presented do not include cost of approaches—other financial arrangements have been made for those.



Wide World photo

Helicopter lifts dome house

An experimental house big enough to sleep 38 men has been developed for helicopter transport in front line military areas. Framed with pine slat triangles and covered with a heavy durable plastic, the dome house is 30 ft in dia and weighs only 1,000 lb. Wind tests show it can withstand gales up to 180 mph. Adding to its military value, the structure casts no shadows and requires no tools for setting up. The plastic cover is waterproof and will not corrode, rust or mildew. The Buckminster Fuller Research Foundation at North Carolina State College designed the House in conjunction with the Marine Corps.

Highway contract signed by mail order firm

Columbus, Ohio, will get a $17-million Sears, Roebuck & Co. plant as a result of Sears coming to terms with the State Highway Department on a traffic plan that will provide a tie-in with the city's $39-million expressway system.

Under terms of the contract, Sears already has paid the state $255,800, representing 10% of the estimated $2,558,000 cost of constructing a road system in the plant area. This system will dovetail with the Spring-Sandusky St. interchange without disturbing the traffic flow. The interchange is a key element in the expressway loop.

If cost of the work exceeds the estimate, Sears has agreed to pay 26% of the excess up to $3 million. The firm will assume the entire cost resulting from any changes in plans due to its own increased requirements.

Sears is building a warehouse, mail order center and retail store, employing up to 3,000. Warehouse facilities will serve a six-state area. Parking facilities and traffic arrangements are predicated on an expected flow of 200 trucks and 5,000 customers' autos daily.

Work on the plant will start in the spring and is scheduled for completion along with the interchange and access roads in late 1955.

Development of a traffic plan satisfactory to federal, state and county highway engineers on one hand, and to the requirements of the firm on the other, has been a long and tedious process involving several traffic and engineering studies.

House bill authorizes Santa Maria project

A bill authorizing the $17-million Santa Maria irrigation project in the Southern Pacific basin in California was passed by the House on Tuesday.

Now it goes to the Senate.

The project stems from joint planning by the Bureau of Reclamation and the Corps of Engineers and provides for the former to construct the 184-ft-high earth-fill Vaquero Dam and Reservoir on the Cuyama River, seven miles from Santa Maria.

Related flood-controlled levees and channel improvements in the Santa Maria Valley below the Cuyama River would be constructed by the Corps of Engineers.

Estimated cost for both the water conservation and flood control features is $28.3 million. The $13.9 million allocated to irrigation would be repaid over a 40-year period by farmers in the 38,000-acre area served by the project.

Federal aid highway measures expected to get favorable congressional action

Congress and the Administration appear to be in favor of highway legislation that will boost federal aid from the present $575-million authorization up to perhaps $850 million per year.

Congressional action will be focused on the bill sponsored by Rep. J. Harry McGregor, chairman of the House Subcommittee on Roads. This measure has the advance concurrence of leading national associations concerned with road improvements. It is based on prolonged public hearings at the last session of Congress.

Last week Sen. Francis Case, head of the Senate Subcommittee on Roads, jumped the gun a little by introducing a separate bill in advance of the long-considered McGregor measure. Case's bill foreshadowed the total amount of federal aid that Congress would be likely to approve. It recommended $835 million for each of the two fiscal years 1956 and 1957.

In the Case Bill, the amounts for the interstate highways and the entire primary system would be apportioned to the states under the old formula—based on population, area and post road mileage. (The American Association of State Highway Officials favors allotting interstate funds more in accordance with traffic needs, by putting apportionment for these main routes strictly on a basis of population).

Case went along only part way with another idea of the state highway officials. Whereas AASHO favors a 75-25 ratio, the Case Bill proposed a 60-40 matching of federal-state funds for interstate system improvements to stimulate the buildup of the backbone network. A similar incentive is expected in the McGregor measure, to give the interstate routes an advantage in competition for state funds over the primary system, where the matching ratio would remain 50-50.

• **Allotment of funds**—Best advance information on the McGregor Bill indicated that it would set aside $150 million to $200 million for the interstate system. Some strings might be attached to this allotment, but the intention would be to have that amount of federal money spent on interstate routes.

For the rest of the federal-aid systems—primary, secondary, and urban—an increase of $100 million to $150 million a year was definitely predicted for the House bill. That would mean $650-700 million a year for those roads, in comparison with the present $550 million.

Case's bill allows a total of $800 million for the primary-secondary-urban systems and $35 million a year specifically for the 40,000-mi interstate trunk system. In addition he would allow $100 million yearly—from $360 million for the primary system—to be used for the interstate system. He proposes 240 million for secondary roads and $200 million for the urban system.

• **McGregor bill most popular**—Important to the outlook for the McGregor measure is the fact that it has been cleared with the White House and with all trade associations—from truckers to farmers and contractors—that have a direct interest. It also has the general support of Congress.

McGregor hopes to dispose of hearings in a couple of days before the full House committee about the middle of February. The bill then is expected to get early House action and go on to the Senate.

Federal aid proposals are bound to be compared with expected federal revenues from gasoline taxation. McGregor has said that his bill would depend somewhat on continuation of the two-cent federal gas tax, which brings in around $900 million per year.

Both the Administration and congressional highway leaders want to retain the two-cent tax by canceling the one half-cent decrease due April 1.

• **State control conceded**—On the long-debated question of control over work on the federal-aid secondary system, the McGregor Bill was expected to follow the Case measure in conceding administrative authority to the states. Case had borrowed the proposal from McGregor.

The proposed change would put the states in charge of standards, specifications and supervision for design and construction of projects on the secondary system.

With authorizations for parkways, forest and Indian roads, and other highways—amounting to $117-million—Case's total exceeded $1 billion. McGregor aimed to hold his total to no more than $900 million.

Present school needs total $10 billion

Present public school construction needs of the United States add up to more than $10 billion. And an additional $11 billion of new plant should be built in the next 5½ years to take care of increased enrollments and normal replacements.

Those estimates of public school needs are backed up by basic data submitted to Congress last week. In a final report on the first phase of its school facilities survey, the U. S. Office of Education calculated the needs as of September 1952 at 312,000 new rooms that would cost $10.6 billion. About 90% of the cost is for construction.

Since then, the public schools have lost ground, Ray L. Hamon, chief of the school housing section, says. When the present school year started, the need had increased to about 341,000 rooms. To erase that deficit would require well over $10 billion of new construction.

Looking ahead to September 1959, the number of pupils in public elementary and secondary schools will be 6½ million greater than now. To take care of that increase will require 220,000 additional rooms.

Normal replacement of our public school plant, based on a 40-year useful life, calls for 25,000 new rooms a year. In the 1953-59 period, the replacement quota would be 150,000 rooms.

Increases and replacements together add up to 370,000 rooms, costing in excess of $11 billion on a conservative cost basis. With the needs already in existence last September, the potential backlog for public school construction easily tops $20 billion.

Building to meet the total need would require more than double the present rate of public school construction. The current pace is about 50,000 new rooms a year. It would be necessary to increase the tempo to about 120,000 a year for the five years ahead to come level by 1959.

Financing is the main block to fast action. The school facilities survey showed that local and state governments could raise—under existing limitations—less than $6 billion of the $10.6 billion required for immediate public school needs.

The report suggested several ways that financing possibilities could be improved: by increasing property assessments for school tax purposes, by raising state-imposed restrictions on bonded debt, by using special school construction tax levies to help finance new plant on a pay-as-you-go basis, and by merging school districts into larger units to spread the tax base.

These devices, however, answer only part of the problem, the report concedes. There still would be thousands of local school districts that could finance needed construction only with outside assistance.

Army Engineers survey proposed power sites

Army Engineers have given a high flood control rating to two sites on the Clearwater River in northern Idaho, for which five private utitilities have asked the Federal Power Commission for preliminary survey permits.

These sites—Bruces Eddy and Penny Cliffs—are those which have been proposed for development by a partnership between the federal government and private firms (ENR Dec. 17, 1953, p. 26 Dec. 31, 1953, p. 24).

A Corps of Engineers survey of the Clearwater system indicates two dams could have cut 2 ft off the disastrous Columbia River flood crest of 1948. This is the flood that demolished Vanport, Ore., government-built war housing area at a loss of $12 million.

The Bruces Eddy and Penny Cliffs sites were mentioned specifically in the survey report, which was requested by Congress, as highly feasible for development of upstream storage in the Snake River Basin between Lewiston, Idaho, and Pittsburgh Landing, the Middle Snake, and its principal tributaries, the Clearwater and Salmon.

Col. F. S. Tandy, district engineer at Walla Walla, Wash., said the survey also indicated that the two sites could add 532,000 kw of firm energy to the Northwest power supply.

For the first time, observers noted the Corps has adopted the term multiuse of water rather than the term multiple purpose projects in describing utilization, or storage and release of water for re-use at downstream facilities. The report concludes that the Clearwater contributes more flood water than any other regional stream and is a regional problem.

California architect wins third copyright suit

A California Superior Court has issued an injunction restraining a contracting firm from "using, duplicating or disclosing" the copyrighted plans of Cliff May for the construction of low-cost homes. The case is the third one of its kind won by the architect (ENR July 9, 1953, p. 88).

The injunction, issued against Ben H. Hardister, Sonoma County, Calif., contractor directs him to return to May 57 shop drawings on prefabrication of units used in May's houses.

The drawings had been turned over to the defendants under a licensing agreement signed in January, 1953, with Ranch House Supply Corp., owned by May and his partner, C. E. Choate, Los Angeles architect. The agreement permitted the defendants to manufacture the parts, but restricted their sale to authorized builders.

Niagara power

Senate group wrestles with ownership issue

Public versus private power will have its first real test of the present congressional session this week. The $380-million Niagara Power Development project is due for a full-scale airing before the Senate Public Works Committee.

Before the committee are four bills, which pose a choice between public and private development of power facilities on the Niagara River between New York State and Canada.

Three of the bills would provide for construction of a 1,100,000-kw installation by the New York State Power Authority, while the fourth bill would let five New York private power companies do the work.

The bills to be debated by the committee:

- The Miller-Capehart Bill, calling for private construction of private facilities, would provide power distribution preference for defense facilities.
- The Ives Bill, introduced on behalf of Governor Dewey, and the Case Bill would authorize FPC to licensing of the New York State Power Authority to build the U. S. portion of the facilities.
- The Lehman-Roosevelt Bill would provide for a state body, presumably the New York Power Authority, to build the facilities, but in contrast to the other public power bills, it would provide for power distribution preference for domestic and rural consumers.

The Miller Bill passed the House last session by a two-to-one margin and its companion bill, the Capehart Bill with Chairman Martin as a cosponsor, appeared headed for committee approval last summer. At that point Governor Dewey was granted a hearing before the committee and his dramatic appearance is credited with forestalling Senate action.

• **Dewey steps in**—Governor Dewey privately told Republican members that passage of the Miller-Capehart Bill would hurt his gubernatorial race next fall and might have an impact on the entire ticket in a crucial election year.

However, the odds appear to be in favor of the Miller-Capehart Bill and it is likely to be approved after two or three days of hearings. However, when the bill reaches the Senate floor, it will provoke extended debate with liberal Democrats going all out against private power leanings of the Republican Administration.

• **Supreme Court in the picture**—But there is another factor to be reckoned with before the Miller Bill could reach passage in the Senate, and that is a case before the Supreme Court concerning the handling of power by a private utility in New York.

What began as a mere technical accounting dispute between the Federal Power Commission and the Niagara Mohawk Power Corp. (one of five companies sponsoring private development of the falls) has now assumed such broad implications that pending Supreme Court case could put New York State in a key position to determine who shall develop the power.

Governor Dewey of New York intervened in the case to tie it to potential development of the 1,100,000 kw at the falls. Dewey's "friend of the court" brief pointed out that actually New York State holds and controls all proprietory rights in the vicinity of Niagara Falls, and that Niagara Mohawk has no such rights to the water it uses even under its FPC license. If the Supreme Court not only affirms the lower court ruling but goes along with the Dewey argument as well, New York could tie up Niagara development until it got what it wants: state development.

Brazil to be host to international meetings

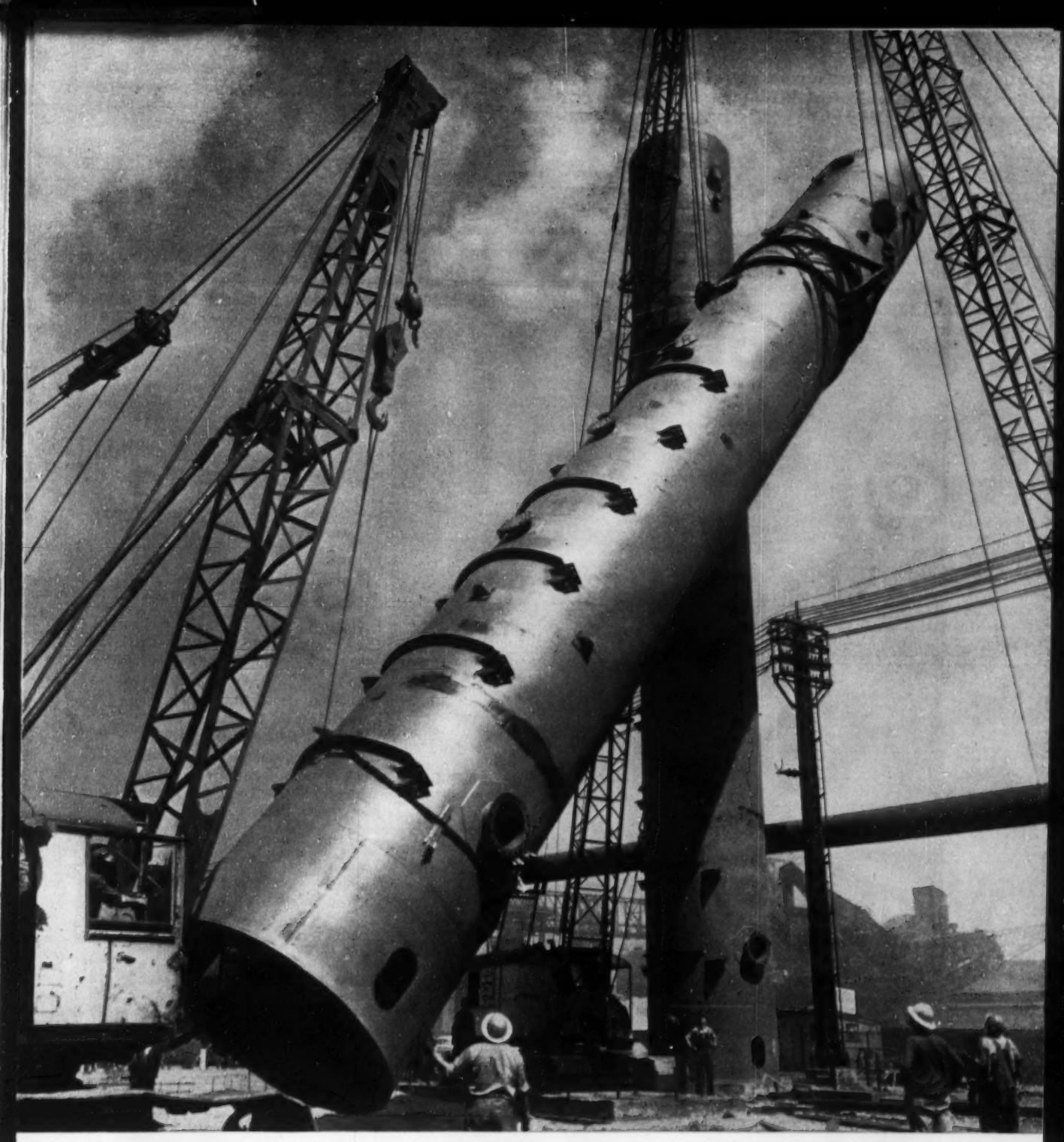
Three international engineering organizations will hold meetings in Brazil this summer, with dates arranged in order to permit participation in all three.

The sectional meeting of the World Power Conference will take place in Rio de Janeiro, July 25 to Aug. 10. The U.S. National Committee for the World Power Conference is working with the Department of State in organizing the U.S. Delegation.

The InterAmerican Association of Sanitary Engineers has selected Sao Paulo for its meeting, July 25 to 31. The U.S. delegation is in the process of being formed. Sao Paulo is this year celebrating its 400th anniversary.

The Third Convention of the Pan-American Federation of Engineering Societies (UPADI) also will meet in Sao Paulo, Aug. 2 to 12. This meeting will attract engineers of all societies from Latin America, Canada and the United States. Engineers Joint Council is currently selecting the U.S. delegates and alternates.

Several tours of both a technical and cultural nature will be available to delegates and visitors. Already on the World Power Conference schedule are visits to such hydro projects as Paraiba-Piraf and Paulo Alfonso Falls, to the government steel mills and to the port of Santos.



Wire Rope at Work—Here's a load that required deft manipulation by three cranes working as a team. The absorption tower being guided into place was 98 ft long, 11 ft in diameter, and weighed more than 33 tons.

For the lifting and placing of this big, cumbersome load, the cranes were rigged with Bethlehem wire rope, Purple Strand grade, in the 6 x 25 construction; sizes, ⅞-in. and ¼-in. A typical assignment for Bethlehem rope, which so capably handles the toughest lifting and hauling jobs in every kind of industry.

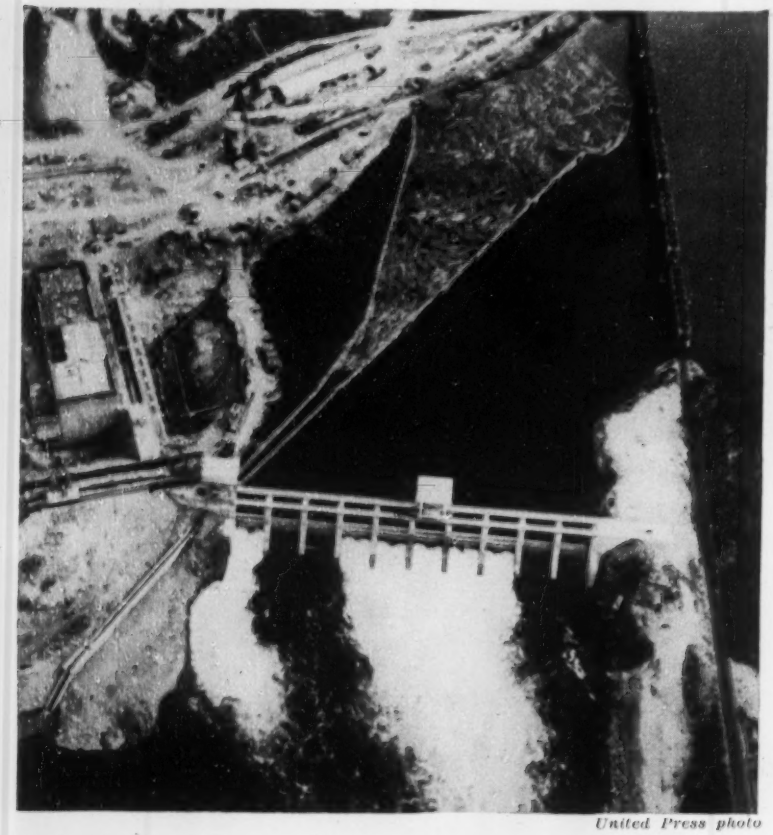
Bethlehem Steel Company, Bethlehem, Pa. On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

Mill depots and distributors from coast to coast stock Bethlehem rope for the following industries and numerous others:

MINING • CONSTRUCTION • PETROLEUM • EXCAVATING • QUARRYING • LOGGING • MANUFACTURING

BETHLEHEM STEEL

BETHLEHEM WIRE ROPE



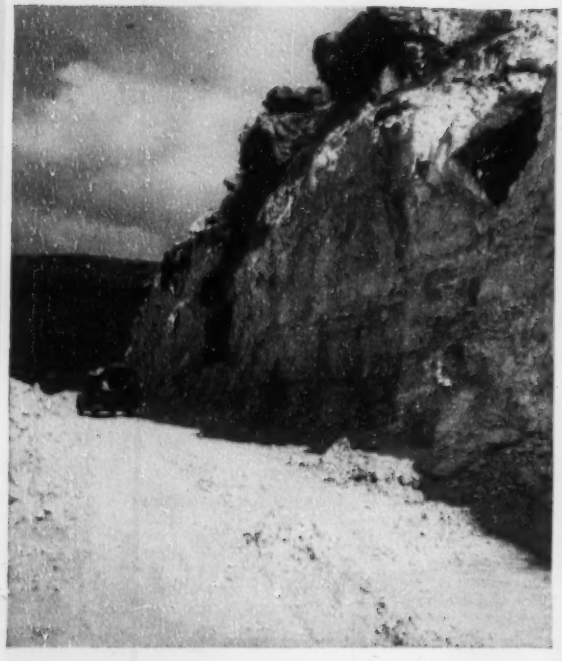
United Press photo

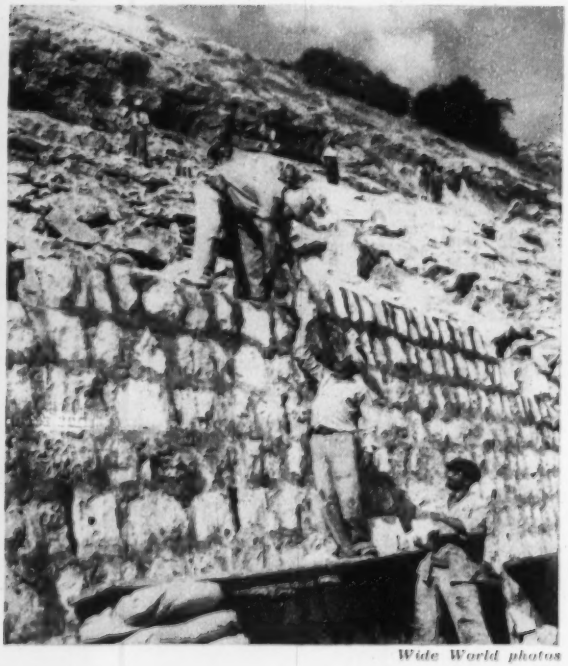
LOGS PASS DAM

Albeni Falls Dam on the Pend Oreille River in Idaho has a unique tunnel and chute arrangement for passing heavy logging traffic. There were 750,000 log-feet of timber in booming yard above the dam when this recent photo was taken. Some 4 million feet of logs went through the dam last summer and fall. Power house still under construction at left will have three units totaling 42,600 kw on line next year. It's a Corps of Engineer project of the Columbia Basin scheme.

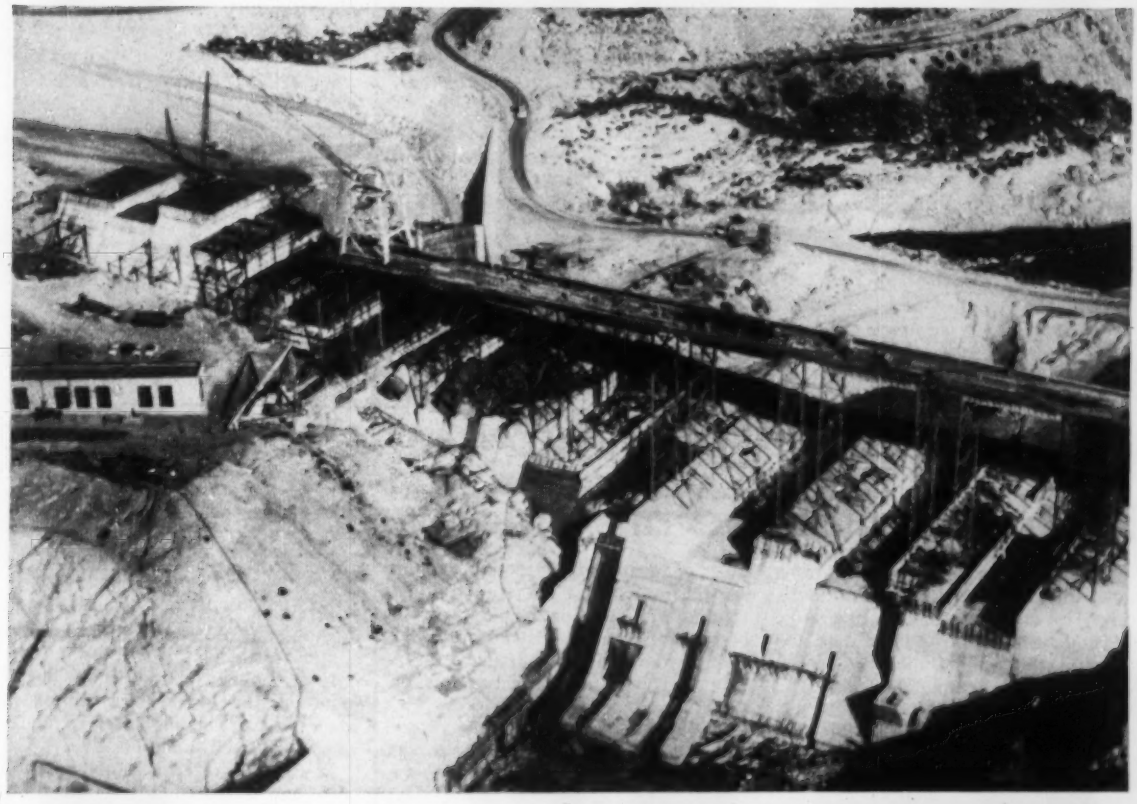
ROAD BUILDING IN ISRAEL

Under the bright Israel sun, engineers and workmen using both the oldest and the newest construction methods are blasting and cutting a highway through the Judaean Hills near the city of Jerusalem. The 20-mi road, financed by Israeli bond funds, will provide a short economical route from the outlying agricultural settlements to the capital.





Wide World photos



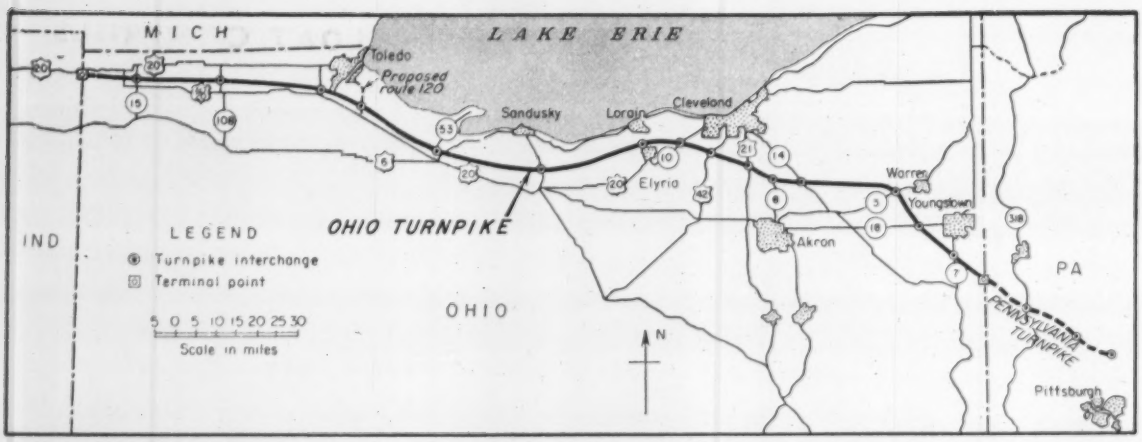
PROGRESS REPORT: FOLSOM DAM

The 500,000th yd of concrete has been poured in the main river section of Folsom Dam on the American River east of Sacramento, Calif. The 1,500-ft trestle straddling the river is now complete, and subsequent concrete pouring can be done with a hammerhead crane from overhead. Concrete pouring should be finished in another year. This trestle was partially washed out by floods last year (ENR July 23, 1953, p. 39). Next January, the first of three 54,000-kw generators to be installed in the power plant will go on the line. Both dam and power plant, part of the Central Valley Project, will be operated by the Bureau of Reclamation when completed.

BRITAIN'S PLUTONIUM FACTORY

Here is the first official photograph of the Windscale Works, the British Atomic plant in Cumberland, England. Construction of the plant began in 1947 on the site of a disused ordnance plant. During the peak of construction about 5,300 men were employed on the project. The factory, which separates plutonium from irradiated uranium, uses two atomic piles for production. Because of the tremendous weight, extensive soil tests were made before construction started to eliminate any chance of the piles shifting because of ground movement. As a result of the studies, the piles were erected on a concrete mat 10 ft thick, 200 ft long and 100 ft wide. The total weight on the mat, including the 415-ft high reinforced concrete stack, is about 57,000 tons. Frame work for the pile structure is composed of vertical steel girders with cross members at the top forming a series of frames on which steel sheets are hung to provide walls. The Windscale buildings probably are the largest structures of this type in England.

British Information Service photo



OHIO'S TURNPIKE, joining Pennsylvania's existing turnpike and Indiana's proposed toll highway, will give convenient access to industrial centers in the northern part of the Buckeye State through interchange connections with 15 important highways.

Fast work planned on Ohio Turnpike

In a little less than two years from now, motorists should find smooth riding on the entire length of Ohio's 241-mile turnpike. Target date for opening the $326-million toll highway to traffic completely across the state between its Pennsylvania and Indiana borders, is Oct. 1, 1955.

For the last several months, relatively smooth going has also been enjoyed by the engineers, the contractors and the Ohio Turnpike Commission engaged in designing, building and supervising the construction of this contemporary superhighway.

But this has not always been the case. In its early stages, the project was beset by time-consuming legal delays; the engineers were under terrific pressure to complete designs so that the construction contracts could be awarded; and the contractors were sorely pressed to submit contract bid prices acceptable to the Turnpike Commission.

• **Over the hump**—On Oct. 21, however, the turnpike got over the hump when it passed the two-thirds point. At that time bids had been received or contracts awarded for 43 of the 62 construction sections covering 162 miles of turnpike construction, including the four largest river bridges, and totaling $147 million. This was 69% of the 1951 estimated cost of $212 million for all roadway, drainage, structure and pavement construction on the 241-mile project.

By mid-November all but one 4-mile section of the turnpike passing through the northern edge of Elyria was either under construction or had been advertised for letting. The commission had to postpone advertising for bids for construction on this 4-mile section pending efforts to reach an agreement with Elyria, which opposes the location.

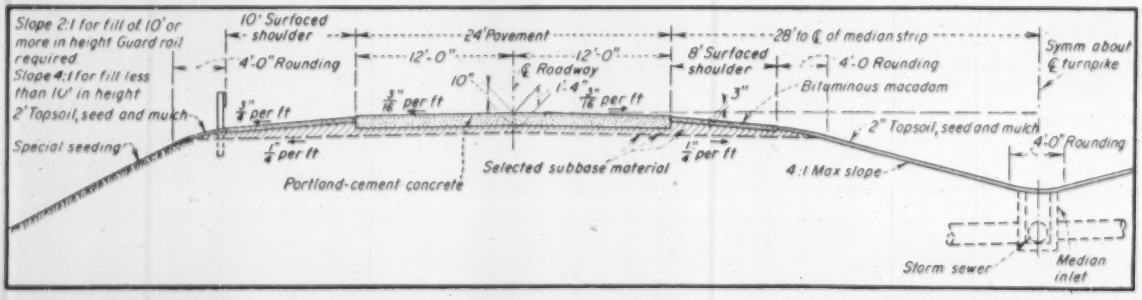
• **Packaged contracts**—At the outset, the Turnpike Commission decided to award the construction in complete package contracts, including everything from clearing the right-of-way to seeding the finished slopes.

There was mild pressure on the part of the contractors to break these package contracts into various components. But the commission resisted on all but one point. That was the fabrication and delivery of structural bridge steel which was contracted separately from the general road-construction, for most of the length of the project.

• **Bid prices began to jump**—The commission ran into a real headache at a contract-letting last July. When the bids were opened for sections C4-C7, inclusive, the lowest bids submitted ran 43% over the engineers' estimates which had been made in 1951.

It was recognized that construction costs had increased during the intervening two years (ENR's construction cost index increased 11.3% from August 1951 to July 1953). But the big question was whether the low bids submitted for constructing sections C4-C7 were indicative of the trend to be expected in future contract lettings. If so, it would be impossible to keep the overall cost of the project within the original estimate, although the estimate includes $25.7 million (10% of the total estimated project cost) for contingencies.

• **Engineer-contractor huddle**—All bids on sections C4-C7 were rejected, while the commission and its consulting engineers held meetings with representatives of the Ohio Contractors Association to see what could be done to bring contract offers more



DUAL 24-FT. PAVEMENTS of reinforced portland cement concrete, flanked on each side by stabilized, bituminous-surfaced shoulders, will be separated by a wide median for safety.

in line with estimated costs.

The contractors contended that they could lower their bid prices on future work if they were allowed more time in which to complete it; if liquidated damages were reduced or eliminated; if the percentage of money withheld on work put in place each month was reduced; if the amount of so-called "earnest money" required to be put up by each contractor submitting a bid was reduced; and if certain construction requirements were modified.

After considerable study the Turnpike Commission inaugurated most of the recommended changes in contract-letting and construction requirements, without sacrificing quality of construction.

• **Contractural modifications**–Up to that time, the completion date for the entire turnpike–so that it could be opened to traffic–had been scheduled for Dec. 15, 1954, with tight construction schedules. The commission extended the completion date for the turnpike to June 30, 1955, and subsequently to Oct. 1, 1955. In addition the contractors have until June 30, 1956, to complete such incidental work as replacement of top soil, final trimming of slopes, ditches and borrow pits, seeding, sodding and final clean-up work.

Liquidated damages for failure to finish on time–formerly set at 0.04% of the total contract price, per day–were eliminated. The commission reserved the right, however, to terminate any contract for failure to perform the work within the specified contract periods.

Formerly, the contractors were required to submit "earnest money", or a certified check for bid security, equal

(*Continued on page 34*)

TRACTOR-SCRAPER TEAMS must be big and rugged to handle efficiently the millions of cubic yards that must be moved on a 241-mile turnpike.

ROCK CUTS ARE WHITTLED DOWN to size by the indispensable combination of power shovel and dump truck.

POWERFUL TWIN-TRACTORS help make big earth-moving production records by elevating loaders and fast-moving trucks.

GIANT COMPACTORS, towed by tractor, accomplish the required compaction of roadway embankments in a single pass.

. . . Ohio Turnpike:

Increased competition brings better bids from contractors

to a straight 5% of their total bid for each construction section. This was changed to read ". . . 5% of the total bid, but not to exceed $100,000 for each construction section."

Revisions in construction requirements included: more latitude in obtaining suitable borrow material; elimination of vibrating pavement concrete, although it is optional; a slight modification in concrete batching and mixing plant procedure, and only two instead of three field coats of paint on metal guardrail.

• **Bids back in line**—These modifications of contractual and construction requirements apparently paid dividends, as reflected by closer agreement between contract offers and engineers' estimates.

Low bids on the first letting under the new regulations (C50, C51 and C52 in the western part of the state) ran nearly 6% under the engineers' estimates.

Low bids that were submitted at subsequent lettings have been close enough to estimates to warrant awarding contracts.

• **Keen bidding competition**—Another factor, although of a nebulous nature, that has produced satisfactory bids, has been the increasing competition between contracting firms to secure the work.

On Sept. 22, 1953, the commission awarded $21.3-million worth of roadway contracts and $1.7-million worth of structural steel contracts. This was the largest total of awards made by the commission at a single meeting.

The work included construction sections C8, C9 and C10, totaling 13.9 miles for $11.1 million, for which seven contracting firms offered 14 bids; sections C20 and C21, totaling 6.6 miles at $5 million, on which seven contractors bid; and sections C34 and C35, for 8.8 miles at $5.1 million, with 12 contractors offering bids. All contracts covered grading, drainage, structures and paving.

• **Structural features**—Although no actual speed limits are mentioned in the Engineering Report of Aug. 15, 1951, prepared by the J. E. Greiner Co., consulting engineers, it states that ". . . the turnpike roadway shall be designed for a speed to accommodate turnpike traffic safely." Minimum sight distance is 900 ft; maximum curvature is 2½ deg; and maximum grades are 2% ascending and 4% descending.

As shown in an accompanying sketch, the four-lane divided turnpike will have dual portland cement concrete pavements each 24 ft wide. They will be laid on a 6-in. layer of densely graded granular sub-base material, on the compacted subgrade. The dual-lane pavements will be separated by a 56-ft minimum with median strip.

The 24-ft-wide dual concrete pavements will be reinforced with wire mash or bar mats. Transverse contraction joints, in general, will be spaced 61½-ft apart. They are not sawed. Instead, the top 1-in. is a ¼-in.-thick impressed joint, sealed with a sealing compound.

Directly beneath this 1x¼-in. joint is a 6x⅛-in. steel contraction plate extending across the pavement and supported by 1¼-in. dowels, 1 ft 6 in. long, spaced 12 in. apart. The dowels, which extend through the plate, are supported by end-guide assemblies and steel pins driven into the subgrade. One end of the dowel bars is coated to prevent bonding with the concrete.

The longitudinal joint on the center line of pavement may be either a 2½x¼-in. sawed joint, a 3⅜x⅜-in. impressed joint, or formed full depth, with a sheer key. Tie bars across the longitudinal joint are ⅝ in. x 4 ft, spaced 2½ ft c-c.

• **Bituminous shoulders**—Both 10-ft shoulders on the outside of each pavement and the 8-ft inside shoulders will be surfaced with 3 in. of pentration bituminous macadam that will be laid on top of the selected subbase material.

There will be 15 points along its entire 241-mile length at which traffic can enter or leave the turnpike. Acceleration and deceleration lanes will be provided at these 15 interchanges. There will be no crossings at grade. All roads intersected by the turnpike will be carried by grade separations under or over the turnpike.

• **Time saver**—It is estimated that the motorist driving the full length of the turnpike will save 3 hr 23 min in driving the 241 miles. Over the same distance, a commercial vehicle will save 5 hr. From Cleveland to Pittsburgh the motorist will save 1 hr 43 min and the truck driver will save 2 hr 37 min.

For this saving in time, plus the other benefits of using a modern, high-speed, smooth-flowing turnpike, the motorist will pay 1¼ cents per mile and the trucker, an average of 4.7 cents per mile.

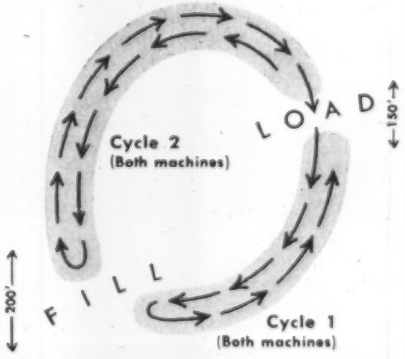
• **Engineers in charge**—T. J. Kauer heads up the Ohio Turnpike Commission's engineering division as its chief engineer. His engineering super-

OHIO TURNPIKE'S FACTS AND FIGURES

Estimated quantities:	
Earth and rock excavation	29,500,000 cu yd
Fill or borrow	46,900,000 cu yd
Pavement concrete	7,860,000 sq yd
Bituminous shoulder surfacing	5,200,000 sq yd
Concrete in structures	582,000 cu yd
Steel	171,000 tons
Right-of-way fence	2,500,000 lin ft
Guardrail	1,290,000 lin ft
Structures:	
Major river crossings	4
Other stream crossings	34
Drainage structures	251
For carrying highways over or under turnpike	282
For carrying railroads over or under turnpike	41
Service stations and restaurants	32
Estimated daily traffic (first year):	
Passenger cars	4,830
Commercial vehicles	3,850
Estimated revenue:	
1956	$20.6 million
1960	$27.5 million
1965	$35.4 million
Estimated maintenance and operating expenses:	
First year	$2.2 million
Tenth year	$2.9 million

Grading for aircraft plant in Mojave Desert

RUBBER TIRES PAY OFF 2 WAYS



Loading in 150' cut was planned so pusher had minimum of travel. First, it loaded both Tournapulls in one direction, taking 75' per machine. On next cycle, it turned and loaded both in opposite direction. To keep borrow level, loads were taken progressively across face of cut. Tournapulls minimized their cycles by turning 180° after dumping and returning along same route as haul.

"D" spreads 8-yd. load in 20 seconds over 85'. Note compaction of "D's" big, low pressure tires which showed 97% on California test.

Profitable use of rubber-tired D Tournapulls for compaction as well as for dirtmoving is reported by Jasper Haley, Baldwin Park, Calif.

Leveling Northrop Jet plane plant site at Palmdale Air Base, 2 of his 3 electric-control 7-yd. "D's" moved 45,000 yards of dirt in 22 days. They compacted as they spread . . . then drove back and forth over the fill as necessary to finish compaction to specified density of 95%. At time pictures were taken, lowest compaction by California Test System was 97%.

In typical dirtmoving, sideboarded Tournapulls were push-loaded with 8 pay yds. of clayey sand in 45 seconds. In spite of rolling resistance of 200 lbs. on haul road, "D's" averaged a 1200' round trip every 3½ minutes. Each unit delivered 14 loads per 50-minute hour, for a combined output of 224 pay yds.

95% efficiency in 10 months

Rubber-tired 28 mph mobility speeds job-to-job moves, too. The Tournapulls drive everywhere under their own power, often through congested Los Angeles traffic, to maintain a busy work schedule. After 10 months work-time, Haley's 3 "D's" show 95% mechanical efficiency.

Says Partner Buford Richardson, "When it comes to housing tract work, which is our specialty, Tournapulls can't be beat. They're very maneuverable and work in places where most other units cannot work."

Foreman Jim Wright reports, "All our operators definitely prefer LeTourneau-Westinghouse Tournapulls over other scrapers, and I agree.

"The fact they can travel from job to job under their own power is an added point in their favor."

Check the facts!

D Tournapull's speed, mobility, and maneuverability can help you, too. Why not check user-verified facts and figures on work like yours. Ask us for a demonstration on your job. You name the time and place . . . and we'll be there!

Tournapull—Trademark Reg. U.S. Pat. Off. DP-511-B-b

LeTourneau-Westinghouse Company

PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

. . . Ohio Turnpike:

Contractors equip for large and fast earthmoving job

visory personnel include: R. J. Lehman, design; E. L. Sheley, construction; E. H. Scofield, materials; G. K. Jewell, soils; R. S. Deetz, traffic and safety; C. W. Hartford, right-of-way; Robert Burket, plans; C. H. Makeever, operation and revenue; and L. G. Byrd, office. Maj. Gen. Robt. S. Beightler, U. S. A. (ret.) was appointed executive director of the Ohio Turnpike Commission last August.

The J. E. Greiner Co., Baltimore, made the preliminary engineering studies and are the general consultants on the entire project. The project has been divided into twenty-one design sections. These have been assigned to seventeen other engineering firms as contracting engineers who prepared the detailed designs, contract plans and specifications and are supervising the construction work under the package contracts which include the grading, drainage, structures and pavement.

E. J. Donnelly, partner, J. E. Greiner Co., is in over-all charge of the project. J. J. Jenkins, Jr. is resident partner; H. A. Harnden is chief design engineer and E. P. Root is construction engineer. The Pittsburgh Testing Laboratory holds a $600,000-contract for inspection and testing materials on the entire turnpike.

• **Good construction weather**—Earthmoving got off to a slow start early in 1953 because of legal difficulties and uncertainties encountered by the Turnpike Commission as to the type of pavement that would be used. But dirt really began to fly shortly after mid-year and increased to a fast tempo as more and more contracts were awarded.

No one contractor's operations can be classed as typical for the entire project. Those observed, however, on the first construction section to get under way (C1), are at least representative of the fortitude with which the job of moving some 75,000,000 cu yd of rock, muck, earth and borrow material on the 241-mile project is being tackled.

• **How one contractor did it**—Harrison Construction Co., Pittsburgh, holds a $3.5-million contract for construction of section C1, which joins the Pennsylvania Turnpike at the Ohio-Pennsylvania state line and extends 5.1 miles westerly.

At the height of earthmoving operations, Harrison employed 230 skilled and unskilled workmen, and 30 supervising foremen. Whitey Smith is construction superintendent, and Willis Bryan is project engineer for the consulting firm of Richardson, Morehouse, Ramsey and Fisher, who designed, and are supervising the construction of sections C1, C2 and C3.

• **Large equipment inventory** — Like other contractors on the project, Harrison's contract was big enough to warrant a substantial investment in machinery.

Basically, there were three types of earthmoving equipment: tractor-drawn scrapers for short hauls; motorized scrapers for medium hauls; and dump trucks for the long hauls, and for rock excavation that had to be blasted and loaded by shovel.

A rough count of only the major units at work on a typical day included: 12 tractor-drawn 12-cu yd scrapers; 26 motorized scrapers, 12 to 25 cu yd; 27 dump trucks, 10 to 15 cu yd; 29 track-type tractors; 6 shovels, backhoes and draglines; one elevating loader pulled by a twin-tractor; 9 compactors and rollers; 3 motor graders; and several pneumatic rock drills with compressors. Multiply the value of this equipment inventory on only one 5-mile contract, by the number of similar contracts needed to complete the 241 miles of turnpike and the total investment will run into milti-million-dollar figures.

In general, Harrison worked two 9-hr shifts, moving from 17,000 to 20,000 cu yd of excavation and borrow in an 18-hr day, with haul distances of 1½ to 2 miles. One big fill was over a mile in length, and contained 275,000 cu yd of material. Embankments were compacted by sheepsfoot rollers and 20-ton compactors to 95 to 102% of maximum density at optimum moisture content.

Paving work is expected to reach two peaks of activity, the first in August, September and October of this year, and the second in June, July and August of 1955.

The commission hopes to open the extreme eastern 21-mile section on Nov. 30, 1954. Opening that section will make it possible for traffic from the Pennsylvania Turnpike to reach an interchange with State Route 18 west of Youngstown.

Actually the Ohio commission already has put down one half mile of concrete paving at the east end to improve traffic conditions there. This paving was laid late in October.

ENR staff photos

THE WESTERN terminus of Pennsylvania's turnpike lies fallow and untraveled now, but two years hence it should be in full use.

48 miles of CONCRETE PIPE assure adequate water supply for Savannah River Project

Producing materials for both A and H bombs at the Savannah River Plant in South Carolina requires enormous quantities of water. This water, from the Savannah River, is carried in concrete pipe lines to two pump houses, then distributed by other concrete pipe through the 315 square-mile plant site. From the pump houses the shortest line is 29,834 ft., the longest 62,419 ft. The system required 48 miles of concrete pipe.

Extremely difficult engineering problems were encountered in building this project because of the high water table in the entire area. Complete wellpoint systems had to be installed on every line as shown in the photograph. Many lines were laid in swamps and under creeks and railroads.

Whether the water line you plan is to be long or short, concrete pipe offers you the rugged strength, the long life and the economy necessary for satisfactory service. Its tight joints and dense structure prevent leakage and infiltration.

Because durable concrete pipe is not subject to damaging internal corrosion, it will maintain constant hydraulic efficiency. And it delivers long years of dependable, ***low-annual-cost*** service.

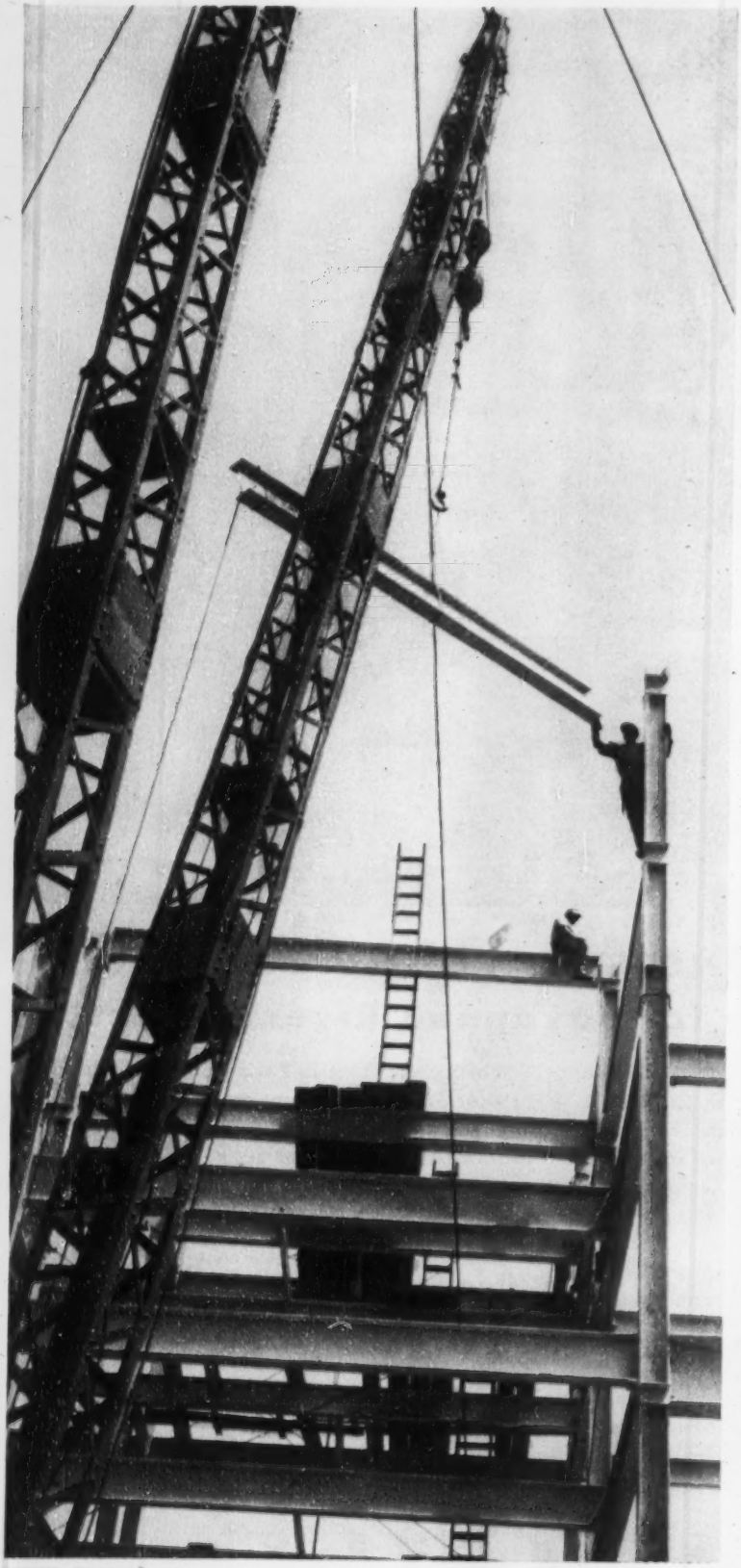
CONCRETE PIPE USED IN SAVANNAH RIVER PROJECT

48"	410 ft.	66"	65,225 ft.
54"	5,250 ft.	72"	23,178 ft.
60"	28,493 ft.	78"	30,472 ft.
		84"	100,529 ft.

PORTLAND CEMENT ASSOCIATION

33 WEST GRAND AVENUE, CHICAGO 10, ILLINOIS

A national organization to improve and extend the uses of portland cement and concrete through scientific research and engineering field work



STEEL ERECTION for a 14-story welded building in Miami, Fla., advanced at the rate of three stories every two weeks and was completed in ten weeks.

SEMI-RIGID CONNECTION was made by partly welding top plate to beam.

Welding a tall

Alfred Oboler
Oboler & Clarke, Consulting Engineers
Miami Beach, Fla.

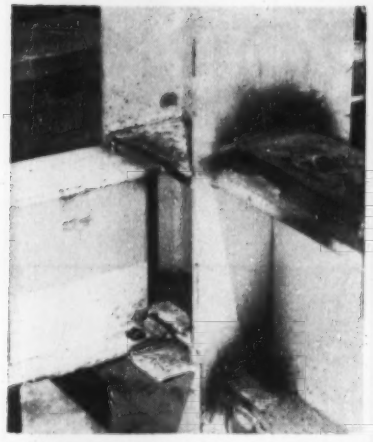
Elimination of riveting clatter in a congested metropolitan business area, provision of adequate strength to withstand hurricane winds and a substantial saving in structural steel tonnage—these were three major accomplishments realized in design and erection of the 14-story Ainsley Building in downtown Miami, Fla., by welding structural connections.

The decision to adopt all-welded construction for this structure had the full endorsement of the Miami Building Department and other city agencies, because of the elimination of noise. At the same time, the designers cut down on steel requirements, possibly as much as 15%, through the use of both rigid and semi-rigid connections, instead of simple-beam supports.

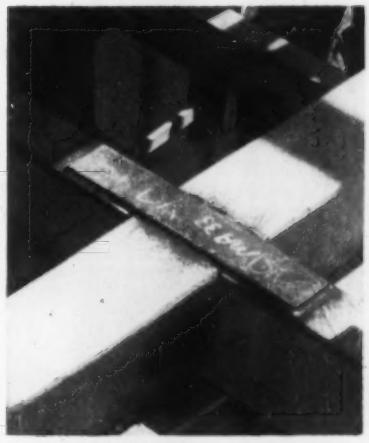
Close cooperation among architect, engineers, contractor and steel fabricator made possible erection of the 1,178 tons of steel in only ten weeks.

• **Dual role**—The engineers who designed the building also were commissioned by the steel fabricator to do the detailing, saving time and expense by elimination of approval prints. Design computations provided moment and reaction values in beam and column connections, these figures being immediately used for detailing, which had "automatic" approval. Having the same firm do the detailing as well as the designing had the further advantage of insuring that connections would be made as originally conceived by the engineers.

• **Hurricane-resistant** — The Ainsley Building is believed to be the largest



RIGID CONNECTION was made by welding beam (left) to column stiffeners.



CONTINUITY of beams framed to a girder was achieved with welded top plate.

COLUMN SPLICE was effected with welded splice plates and clip angles.

building to take high wind loads

all-welded multistory office building ever designed for such a high wind load—50 psf. Topped by a penthouse, the structure is 14 stories high, with a floor-to-floor height of 10 ft. 6 in. In plan, it is 140x90 ft.

Exterior walls facing streets are largely of glass set in aluminum frames, with aluminum-covered spandrels at floor levels. Floors are two-way concrete slabs 5 in. thick. Exterior columns and all beams are fire-protected with 2 in. of concrete, and interior columns, with 2 in. of vermiculite plaster.

Typical column spacing is about 20 ft. Thus, the frame contains seven bays in one direction, four in the other. The columns range in size from 14 WF 426 to 14 WF 43.

Wind beams vary from 21 WF 142 to 14 WF 53. Interior beams are all within the 14 WF series, to gain headroom.

• **Semi-rigid connections**—Wind loads are taken by beams with semi-rigid end connections, which do not permit as much rotation of the beam end as hinged supports but yet do not restrain the beam end completely. In making these connections, plates were fillet welded to the top flanges of the beams and butt welded to the columns in the field. Beam bottom flanges were shop beveled and a full butt weld made to the columns in the field. Shear stresses are taken by seat angles, which were fillet welded to the columns in the shop.

The top plate undergoes a small inelastic deformation under excessive end moment, allowing the beam end to rotate. By not welding to the beam a length of the top plate (equal to 1.2 times the plate width) adjacent to the columns yielding may occur with little constraint.

These plates were made narrower than the beam flanges, to allow downhand fillet welding along the two edges parallel to the beam web. Thickness of the plate was determined by the necessity of developing in it the same strength as the beam top flange. As a result, the top plates, varying in thickness from ¾ in. to 1¼ in., had to be thicker than the flanges. Length of these plates was determined by the length of weld required for full development of the tensile strength of the plate and the length of the unwelded portion.

Holes punched in the beam bottom flanges permitted them to be bolted to the seat angles to hold position for welding. Horizontal stiffener plates were welded between the column flanges to transmit load concentrations from the connections through the columns.

The advantage of this type of connection (75% restraint) is that negative and positive bending moments are equal for uniform loading. Either moment is less than the maximum moment with any other degree of end restraint.

• **Rigid connections** — Other beams framed to columns were designed for full continuity. The connections were made by butt welding the shop-beveled top and bottom beam flanges to the horizontal stiffener plates on the columns, thus saving an appreciable tonnage of steel. Shear is taken by seat angles that were welded to the columns.

Where beams frame to girders, continuity was effected by connecting the top flanges of the beam with a heavy steel plate, or strap, welded to the girder flange. The strap was fillet welded to the beams except for short lengths near the girder flange. Beam bottom flanges were welded to the girder web on both sides.

• **Column splices**—Joints between the heavy columns were made with overlapping splice plates. These were shop welded to a filler plate on the upper column and field welded to the flange of the lower member, reducing the amount of field welding involved for the columns. Two clip angles were welded to the column webs for erection purposes; they were bolted to hold the columns in position until welded. Use of clips for these splices and shop welded seat angles for the beams made drilling or punching of holes in the columns unnecessary.

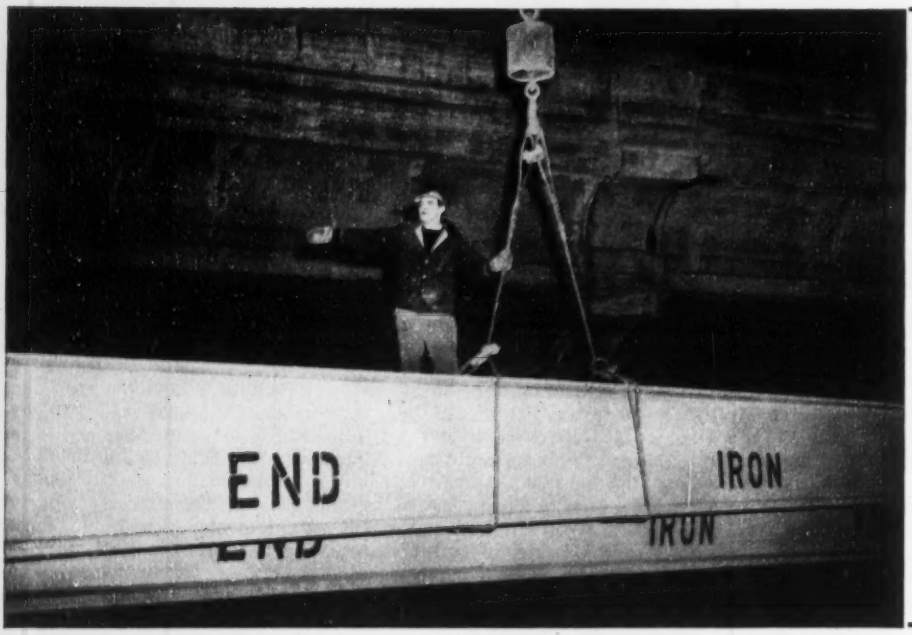
• **Erection notes**—The welding crew consisted of nine men, who followed right behind the steel erectors. Derricks for hoisting steel sections were jumped two floors at a time, and three full stories were erected every two weeks.

Shop welding of seat angles, splice plates and other details required a total of 8,800 lb of mild steel rod (mostly type E-6010). Field welding consumed another 7,850 lb. Motor generators of 400-amp capacity supplied current in the fabricating shop, whereas at the building site, gasoline-engine-driven 200-amp units served the welding crew.

Before erection, all structural sections were given a zinc-chromate primer coat in the shop, partly because of the danger of imminent rust. No complaints were heard from any of the operators about fuming of the paint during welding.

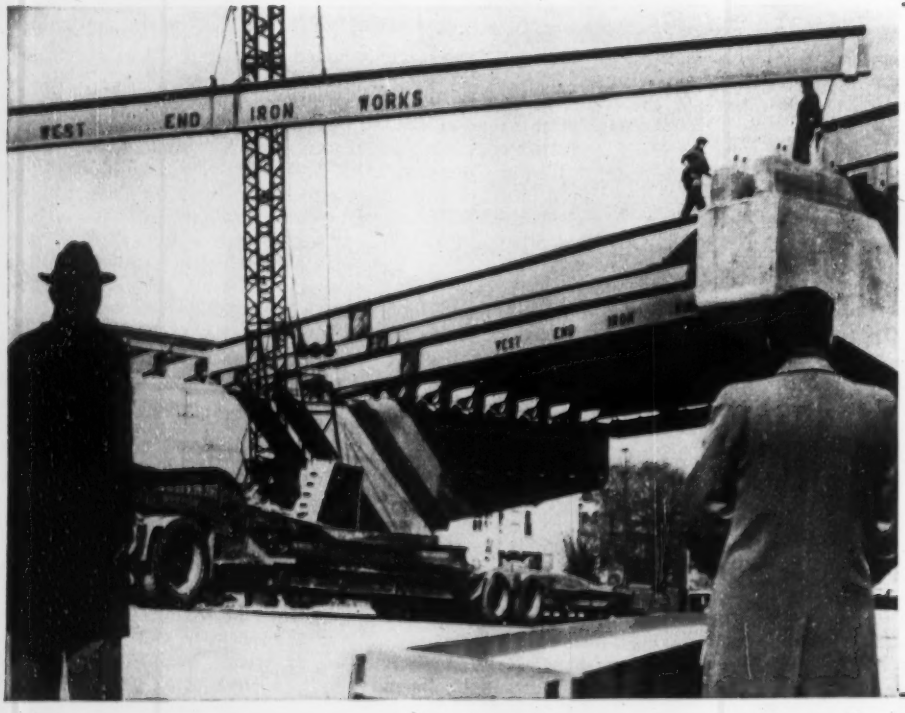
Morris Lapidus, of Miami Beach and New York, was the architect. Oboler & Clarke were consulting structural engineers. Robert L. Turchin, Inc., of Miami Beach was the general contractor, and Ludman Steel Co., of Miami, handled steel fabrication and erection.

OVERHEAD PROBLEM



(1)

Work began on Forest Hills, Mass., overpass after final train of day had passed.



(3)

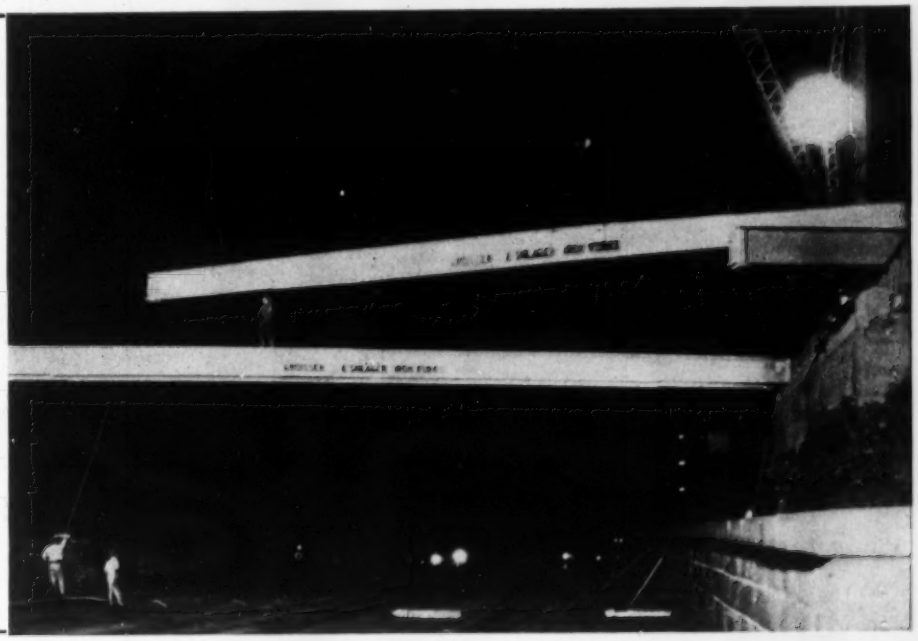
By noon, five 111-ft. girders were in place. Entire job done swiftly without a single mishap by the Owen J. McGarrahan Company of Cambridge, Mass.

SOLVED IN HOURS!

(A brief case) By Mr. Friendly

(2)

Three 25-ton girders were in place 4 hours later. Job made safer with 15 large spotlights.



MORAL:

When you race the clock swinging 25-ton girders into place, it's not apt to be the safest job on earth! The McGarrahan Company, steel erection contractors, an American Mutual policyholder, knows by experience that only the combination of good management, intelligent supervision and skillful workmen can get a job done without an accident. For the erection of steel in buildings, bridges, viaducts and other structures, they know that planning with the aid of American Mutual safety engineers is the course to fewer accidents and lower insurance premiums. If you're interested in a service that can help your own overhead problem . . . by reducing accidents, premiums, and by savings through dividends, write for your free copy of "Foremanship and Accident Prevention in Construction," American Mutual Liability Insurance Company, Dept. O-125, 142 Berkeley Street, Boston 16, Mass.

AMERICAN MUTUAL

Service from salaried representatives in 78 offices!
Savings from regular substantial dividends!

© 1954 AMERICAN MUTUAL LIABILITY INSURANCE COMPANY

Bin el Ouidane Dam is a notable achievement of construction because this . . .

Single hydro project doubles Morocco's power

Waldo G. Bowman
Editor, Engineering News-Record

There are in French Morocco seven hydro and six steam power plants with a combined capacity of 208,000 kw. Now, a single hydro project, nearing completion after three years of work, will jump this total by 224,000 kw, and, in addition, furnish water for the irrigation of 250,000 acres of land.

On a power output basis the country's present 722 million kwh annually will be increased to over 1,200 million kwh. Thus, in one giant step, the farms and factories of this rapidly developing but still under-developed country can plot an immediate growth that under less dynamic planning would probably have taken another decade to accomplish. In this respect the project is a spectacular refutation of the charge by some elements in Morocco that France is derelict in its duty to the country which is under its protection.

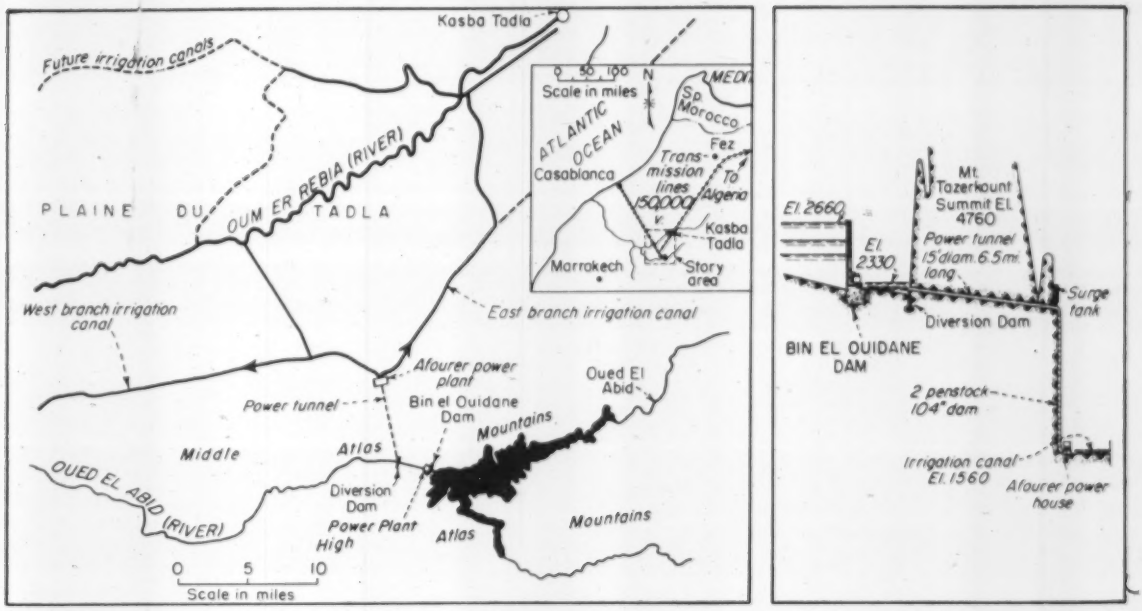
Key element in the project is Bin el Ouidane Dam, located in the Middle Atlas Mountains about 150 miles southeast of Casablanca, and impounding 1,200,000 acre ft of water of which two-thirds is live storage.

This water is fed first to a power plant at the foot of the dam where three 40,000-kw generators are installed. Returned to the bed of the Oued el Abid, the water flows for about 2 miles to a diversion dam where it enters a 6.5 mile tunnel leading to the penstocks of a second power plant at Afourer at the foot of the mountains. Afourer is equipped with two 52,000-kw generators which discharge into the headworks of a two-branch irrigation canal that will serve the extensive Tadla Plain, which heretofore has had to depend on the inadequate flow in the Oum er Rebia. The canal branch toward the west is 15 miles long and of 1,200 cfs capacity, while the eastern arm is 22 miles long and of 600 cfs size. Between 15 and 20 miles of extensions to these canals are also projected for some future date.

All of these facilities are being built by the most modern methods and with the most modern types of equipment, about half of which is of American manufacture. The work is also being done—in so far as the dam is concerned—in an area that was completely isolated from the outside world until the first 20-mile construction road was built. The supervisory and labor forces recently included about 600 French and 4,000 Moroccans, although the latter was close to 8,000 in the earlier stages. It is a point of pride of those on the job that despite a complete absence of law or any army protection no racial difficulty or other conflict between the different nationalities was experienced.

• **High arch dam**—Bin el Ouidane Dam is 430 ft high from deepest foundation and therefore lays claim to being the tenth highest dam in the world. It is of arch type, a design chosen to reduce both foundation excavation and concrete volume as well as being suitable for the canyon site. Some 850 ft long on the crest, it is 82 ft thick at the base of the arch section and 16 ft thick at the top. The dam and its appurtenant works contain 600,000 cu yd of concrete.

Special design problems centered on the foundations and the spillway. While the dam rests on a limestone of reasonably good quality as to strength and tightness, an underlying layer of marl offered a threat of major leakage. Accordingly it was necessary to sink a double line of drill holes across the entire upstream face of the dam for the injection of grout. The holes varied in depth from 150 to 600 ft.



LOCATION AND LAYOUT of Bin el Ouidane Dam and its power and irrigation facilities in the Atlas Mountains of Morocco.

The spillway problem was to discharge 90,000 cfs beyond the powerhouse and in such a way that downstream erosion would be eliminated. This was accomplished by a ski jump type spillway set in the right abutment of the dam and discharging nearly 200 ft above the tailwater of the power plant. The spillway entrance is divided into two 45-ft openings controlled by radial gates, and the chute of the spillway is banked to direct the water away from the canyon wall and toward the center of the stream. Although two 23-ft dia diversion tunnels were installed in the left abutment to bypass the river during construction, these facilities will play no part in the permanent operation of the dam whose base is pierced by two emergency discharge openings as well as by the three penstocks.

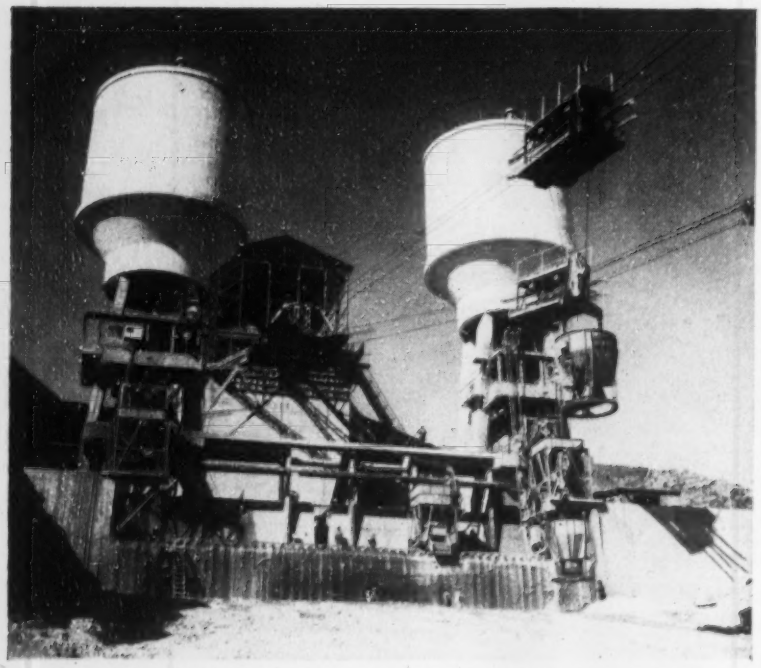
The powerhouse, 200 ft wide from canyon wall to canyon wall, houses the three 40,000-kw generators connected to Francis vertical turbines operating under heads varying from 200 to 350 ft. The three penstocks embedded in the dam are 12 ft in diam. The transformers and switchyard are located between the dam and the powerhouse.

PLUGGING A NARROW CANYON, the dam is designed to release its impounded water through its powerhouse, supplemented in flood times by a ski-jump spillway to break the force of the falling water.

• **High capacity cableways**—The construction plant used to build these facilities is featured by two 15-ton cableways with a span of 1,650 ft. The cableways are equipped with 6-cu-yard buckets fabricated of the aluminum alloy, duralumin, as are the carriages and sheaves that support them, which feature is said to have increased the payload as much as 50%.

Another feature of the cableways is that their fixed ends are anchored to the aggregate storage bins, thus eliminating a special anchorage and permitting a compact layout for the concrete manufacturing facilities at this end of the cableway. The bins are built of reinforced concrete to give them more weight and resistance.

• **Concreting facilities**—As shown in the headpiece illustration, the concrete plant and appurtenant facilities are located above the right abutment of the dam. Farther back up the mountain are the quarry and the primary crushers which supply a hard granite rock for the aggregates. The product of this crushing plant is of 8 in. maximum size, which is stockpiled and then brought to the final crushing plant (located over the aggregate storage bins) on a half-mile-long belt of 300 tons per hr capacity. Five gyratory crushers and four hammer mills produce the five sizes of ag-



TWIN MIXING PLANTS installed in concrete towers topped by the cement silos serve the cableway buckets through the medium of a transfer car. A further novelty is the use of the aggregate bins (background) as the anchorage of the cableway.

gregates required—⅛; ¾; 1; 3; and 7 in.

Two concreting plants are located in front of the aggregate bins, one on either side of the cableway terminal. The structure of these plants is entirely of reinforced concrete, including the cement storage bins which surmount them. Each plant is equipped with a 2-cu yd mixer, and all batching and mixing operations are electrically powered.

The concrete is discharged into special batch cars which then move on a transverse track to a position where they can discharge into the cableway buckets, as shown in the illustration at the top of this page.

Concrete was placed in the dam in blocks 45 ft wide and in 5-ft lifts, with the aid of high-speed vibration (10,000 vpm). The best daily production was 1,800 cu yd, with the usual amount varying between 1,000 and 1,300. With the dam and powerhouse now virtually complete, concreting is now centered on small finishing operations.

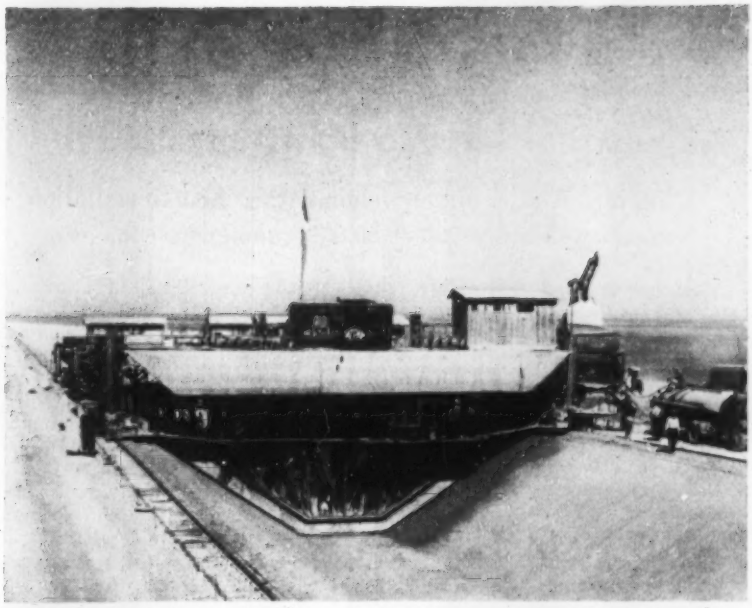
• **Long tunnel, two headings**—About two miles downstream from Bin el Ouidane Dam, discharged water is diverted into a tunnel through the Middle Atlas Mountains by a small circular-arch dam of uniform 16 ft thickness and 400 ft long at the crest. Its principal feature of note is that, while only 65 ft high above streambed, its foundations extend to 85 ft below.

The tunnel, 6.56 miles long and about 15 ft in dia inside the concrete lining, had to be driven from only two headings, one at the inlet and another at an adit which intersected the tunnel line about ½ miles from the discharge end. The section driven from the inlet heading was therefore 6 miles long. The principal problem encountered was from water, about 50 cfs in the upstream portion and 90 cfs under about 200 psi pressure at the downstream end. The worst of these water inflows caused several month's delay, but all were finally controlled by advancing 3 or 4 drill holes some 300 ft forward of the heading and then grouting the rock at 450 psi.

The tunnel is in a limestone formation, badly fractured in some areas and interrupted by formations of marl in others. Accordingly roof supports were required over long stretches of the tunnel. Where it was necessary to provide support immediately after excavation, rolled steel ribs with timber lagging were used. If support was not required so promptly, polygonal arches of reinforced concrete were installed

SECOND POWER PLANT, at Afourer, is fed by two penstocks from the tunnel, and discharges into the irrigation canal. Third pipe on the hillside bypasses power plant.

PENSTOCKS ARE WRAPPED with steel cables to increase their strength.



IRRIGATION CANAL LINING is applied in this traveling template form. Concrete mixer, a paver fed by batch trucks and a tank wagon, moves on the far canal bank.

For the most part a full heading advance was made at a rate between 23 and 30 ft a day, using a 63-hole drilling pattern with 290 lb of explosives per round. For one 7,000 ft section through marl it was necessary to drive a timbered pioneer heading and then enlarge it to full section.

Both a mechanical mucker and a short-boom shovel were used to load material into 6-cu yd rail cars which were hauled by storage battery locomotives back to where the last crews of workmen were located, after which diesel locomotives took over.

Lining of the tunnel is done with movable forms and the concrete is pneumatically placed.

The purpose of the tunnel is to feed the second power plant at Afourer at the foot of the mountains and then to supply the irrigation system for the plains. Thus, outside the outlet of the tunnel a concrete surge tank 100 ft in dia and 90 ft high, half buried and half exposed, is built to ride on the penstocks which drop 775 ft to the power plant. There are two penstocks, each 1,700 ft long and 104 in. in dia, and a discharge pipe 1,900 ft long and 56 in. in dia. The penstocks are of the "auto-fretted" type, that is, are wound with high tensile cable against which the plate of the pipe is expanded (by water pressure in the factory) until its elastic limit is exceeded so that it maintains a permanent set.

• **Irrigation canals**—The two main irrigation canals into which the discharge of the Afourer plant feeds are, as noted previously, 15 miles long and of 1,200 cfs capacity and 22 miles long and of 600 cfs capacity. A uniform 12 ft width in the bottom with 34-deg side slopes is used to provide the two capacities.

The canals have been excavated with draglines and tractor-hauled scrapers, and are being lined by a traveling template form to which concrete is fed by belt conveyors from a paving mixer moving along the canal bank. The form is patterned after those used on large canals in the western United States but is of German manufacture. It lays a uniform 4 in. lining.

• **Administration**—For l'Energie Electrique du Maroc, the country's official public utility company, the contractor on the power facilities—dams, tunnel and power plants—is the French firm Entreprise Fougerolle pour Travaux Publics, which on the main dam is associated with another well-known French contractor, Societe Generale d'Enterprises. For Travaux Publics du Maroc, the national public works department, the contractor on the irrigation canals is Societe Auxiliare de Travaux Publics en Afrique du Nord, known as SATPAN, which includes the French contracting firm of Ossude. Bin el Ouidane Dam was designed by Andre Coyne, consulting engineer of Paris, utilizing the results of model studies on the spillway carried out at the Neyrpic Laboratories in Grenoble, France.

SOILS and FOUNDATION ENGINEERING

A Complete Soils Engineering Service Available to Architects, Consulting Engineers, Contractors, and Industrial Organizations

EXPLORATION DEPARTMENT

Undisturbed Soil Sampling a Specialty—Shelby Tube and Piston Samples up to 5" Diameter—Denison Core Barrell Samples—Load Tests—Pile Tests

SOIL TESTING LABORATORY

Triaxial Compression—Consolidation—Unconfined Compression—Compaction (AASHO and Modified)—CBR—and all other standard soil tests.

ENGINEERING DEPARTMENT

Foundation Investigations for New Plant Sites—Landslide Studies—Analyses of Foundation Failures—Design of Embankments and Earth Dams—Compaction Control—Special Soil Mechanics Studies

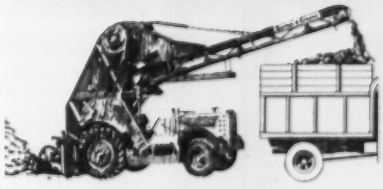
GREER & McCLELLAND

Consulting Engineers

98 Greenwood Ave., Montclair, N. J.

2649 North Main St., Houston, Texas

LOAD



lowest-cost

TRUCK LOADING

with a

BARBER-GREENE LOADER

a constant 3 cubic yard per minute loading speed keeps trucks on the move, prevents costly delays.

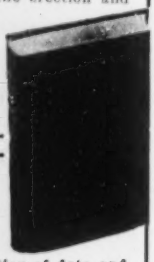
See your B-G distributor or write:

Barber-Greene

AURORA, ILLINOIS, U.S.A.

HANDBOOK OF RIGGING

Condensed into this one book are all the tips, methods, and techniques essential to more effective rigging practices in industrial and construction operations. Deals with everyday maintenance operations—with the transportation and handling of heavy machinery—with the erection and demolition of smaller size structures. Covers everything from ropes, hoisting chains and hooks, to slings and ladders. **By W. E. Rossnagel, Safety Eng'r. 321 pp., over 300 illus., $6.00**

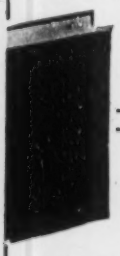


PIPING HANDBOOK

Gives you a vast compilation of data and methods for the most effective uses of piping . . . principles that influence the design, construction, and use of piping systems. **Covers steam power-plant piping, building heating systems, plumbing systems, refrigeration piping, hydraulic power transmission piping, refinery piping, and many others. By Sabin Crocker. 4th Ed., 1376 pp., 763 illus., $10.00**

MATERIALS HANDBOOK

Seventh Edition presents the most important facts relating to more than 8800 materials to enable you to make comparison, avoid checking many sources, and quickly get a working knowledge of the materials best suited for a particular purpose. Gives detailed information on characteristics, comparative data, sources, substitutes, adulterants, and uses for each material. Includes a section on important economic geography. **By George S. Brady. 7th Edition. 879 pp. 360 illus., $9.00**



CIVIL ENGINEERING HANDBOOK

3rd Edition brings you fundamentals, theory, and modern practice in various subdivisions of civil engineering. **Covers surveying—railway, highway, and airport engineering—mechanics of materials—hydraulics—stresses in framed structures—steel design—cement and concrete—foundations—sewage disposal—water supply and purification. Editor-in-Chief, C. Urquhart, Consulting Engr., New York, N. Y., and Newark, N. J. 3rd Ed. 976 pp., 900 illus., $11.00**

—SEE THESE BOOKS 10 DAYS FREE—

McGRAW-HILL BOOK CO., 330 W. 42 St., NYC 36

Send me book(s) checked below for 10 days' examination on approval. In 10 days I will remit for book(s) I keep, plus few cents delivery, and return unwanted book(s) postpaid. (We pay delivery if you remit with this coupon—same return privilege.)

- ☐ Rossnagel—**Handbook of Rigging**—$6.00
- ☐ Crocker—**Piping Handbook**—$10.00; payable $4 in 10 da., $3 a mo.
- ☐ Brady—**Materials Handbook**—$9.00
- ☐ Urquhart—**Civil Engineering Handbook**—$11.00; payable $3 in 10 da., $4 a mo.

(Print)
Name .....
Address .....
City ..... Zone ..... State .....
Company .....
Position NR-2-11

This offer applies to U. S. only.

MUNICIPAL

All-weather landing lights installed

Denver, Colo., airport claims the first installation of variable-intensity 500—250,000 candlepower lamps

Landing lights capable of penetrating any weather front—which means all-weather operations—have been installed along the 10,000-ft east-west runway at Stapleton Field, municipal airport of Denver, Colo.

The city engineer's office claims that they are the brightest runway lights in the world—regular airline pilots report the lights are visible from as far away as 100 mi.

Ted Holmes, chief controller of the Civil Aeronautics Administration tower at Stapleton, says, "The lights will pierce virtually any weather front, enabling aircraft to land safely under extreme conditions."

Claimed to be the first of their kind to be installed at any airport, they are bi-directional, controllable-beam, variable-intensity lights. The 500-w lamps produce a maximum of 250,000-beam candlepower per light, and there are 55 of them placed approximately 200 ft apart extending along each side of the runway.

Along the first 1,500 ft at each end of the runway, the lights are half clear to indicate marginal sections to the pilot.

• **Quick acting**—The intensity of the lights can be increased in seven seconds from a low of 500 candlepower to the 250,000 maximum per light by the tower operator, who manipulates a micro-switch. This permits extremely precise control of the intensity. The lights are on continuously as they grow brighter or dimmer, increasing the safety factor. Under the old system at Stapleton, the lights would go out for a second as they were stepped up in brightness (or dimmed).

The tower operator adjusts the lights to the desired intensity according to instructions received from the pilot during landing or takeoff.

A 50-kva induction voltage regulator was installed in the main transformer vault in the airport administration building. It receives 2,300 volts and

Southern city lights up

What is claimed to be the largest single installation of fluorescent street lights in the country was placed in operation recently in Statesville, N. C.

The six-ft-long luminaires, 104 of them in the city's business district, provide about four and a half times the light with only half the fixtures, according to engineers of General Electric, manufacturers of the units.

Statesville's 17,000 citizens turned out en masse to participate in "lighting-up" ceremonies followed by a street dance.

WEATHER STOPPER is boon to aircraft

feeds it to 12 distribution (5 kva) transformers in the field. Each transformer feeds from 9 to 10 lights. The multiple circuit involves 17 mi of cable installed by direct burial except underneath the runways, where it is carried in ducts.

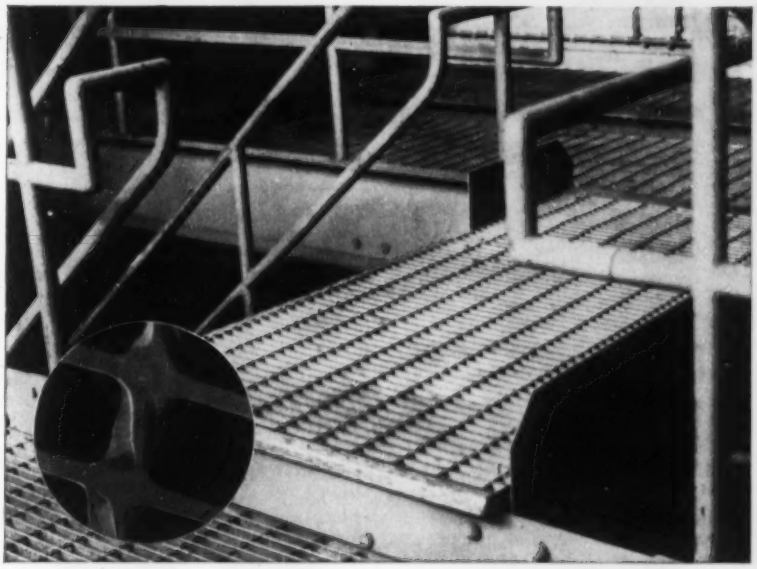
The voltage impressed upon lights from the field transformers regulates the direction of the beam. The bulb rests on two pin-point sockets attached by lever arms to a bi-metal and compensating thermocouple. The voltage is impressed across the bi-metal element causing the light to move in a 7.5-degree arc, turning the beam in a 15-deg arc. The light shines through a Bartow patented lens.

The thermocouple compensates for the increase or decrease of the ambient temperature within the light housing to give true control at all times.

The lights can be taken from their lowest intensity in about half of the normal time for other methods, according to Robert E. Weeks of the city engineer's staff.

A switching system of three oil fuse cutouts at each of the 12 field transformers permits quick restoration of the lighting in the event of failure, Weeks said. If the primary feeders should go to fault, the runway can be placed back in service within a half hour by closing and opening the proper oil cutouts. The secondary side of the transformers also is fused. Each transformer is mounted on a concrete pad in a manhole 6x9x7 ft.

• **Replaced units used**—Weeks said the



Grating by BLAW-KNOX

where do **you** need **steel grating?**

There must be lots of places where you are now using grating—floors, platforms, walkways, catwalks and stair treads, for example.

But how about other uses—such as some sturdy shelving or a fan guard—or for covering a dangerous open pit or a light well. Take a good look around your plant and you'll probably come up with several jobs, including perhaps a new use, as steel grating is adaptable to many applications.

Any time you want some help on a job related to grating, we'll be glad to hear from you.

Only BLAW-KNOX Electroforged® Steel Grating and Stair Treads —have these five exclusive features:

1. **rigid one-piece construction—easy to install**
2. **all surfaces accessible—easy to paint**
3. **no sharp corners to clog—self-cleaning**
4. **maximum open area—for light and ventilation**
5. **non-slip twisted crossbar—safe footing**

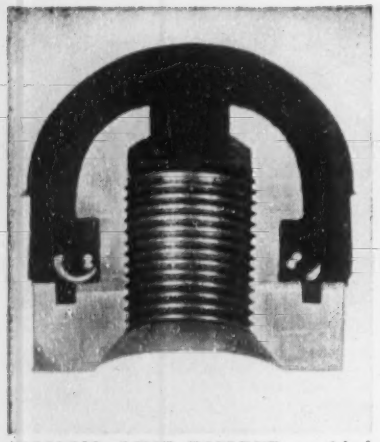
A short note will bring you a copy of new Bulletin No. 2365-R —a dimensional sketch will bring you a quotation.

BLAW-KNOX

BLAW-KNOX COMPANY
2001 Farmers Bank Building • Pittsburgh 22, Pennsylvania

BLAW-KNOX EQUIPMENT DIVISION
GRATING DEPARTMENT

GRATING APPLICATIONS: floors • platforms • walkways • catwalks • stair treads • fan guards • shelving • and many other uses, both outdoors and indoors, for versatile steel grating.



TOUGH, LIVE RUBBER molded on Viber replaceable tip prevents vibrator damage to costly forms.

COILED SPRING around steel base firmly anchors rubber molded completely through and around tip.

Replaceable rubber tips save contractors thousands of dollars

• **Progressive contractors save** thousands of dollars by using rubber tipped vibrators to eliminate damage to forms of plywood and other expensive materials. This means longer form life and less cleanup time. Another important saving is longer housing life because the housing is subject to very little wear, and the tip (where most wear occurs) may be replaced when necessary.

Five years of successful field experience have proved that VIBER'S exclusive patented replaceable rubber tips will stand up under rigorous field conditions. As the result of such experiences, leading contractors like the Robert E. McKee Company have standardized on and use rubber tipped vibrators.

VIBER HOUSINGS LAST two to four times longer because of replaceable rubber tip, which screws on end of housing where most wear occurs. Rubber tip vibrators are available from 1-5/16 inch to 3 inch diameter.

• **Simple design** of Viber's patented replaceable tip combines a machined steel base and a molded rubber body. The base, as illustrated above, provides a positive attachment and mechanical interlocking of the two parts. This prevents any possibility of the rubber coming off in the field until it is literally torn and shredded away by reinforcing steel or the abrasive action of the concrete itself.

The machined steel base screws directly on the lower end of the housing. It is designed with the same outside diameter as the housing, so the complete assembly is perfectly smooth and will not catch or hang up in the form.

The vibrator does not lose any effectiveness when the rubber finally wears off, since vibration comes from the sides of the housing. Replacement of tip requires only long enough to unscrew the old tip and screw on a new one.

• **These patented replaceable** rubber tips are another example of the progressive design and planning which keeps Viber a leader in the field of vibration. For information on Viber's complete line of internal and external vibrators, contact your authorized distributor or VIBER COMPANY, 726 South Flower Street, Burbank, California. Dept. 67.

VIBER

CONCRETE VIBRATORS SINCE 1931

medium intensity lights from the east-west runway are to be moved to the northwest-southeast runway, replacing marker lights. Those flush-type marker lights were passed along to the Denver Traffic Engineering Department for installation on street islands and other traffic obstructions in the business district.

The lights were developed by Richard Madigan of Line Material Co., a division of the McGraw Electric Co., of Milwaukee, Wis., the manufacturers. Thompson Electric Service, of Salt Lake City, Utah, was the contractor on the $79,135-job, and Weeks designed and supervised the installation. The CAA paid $60,000 of the cost.

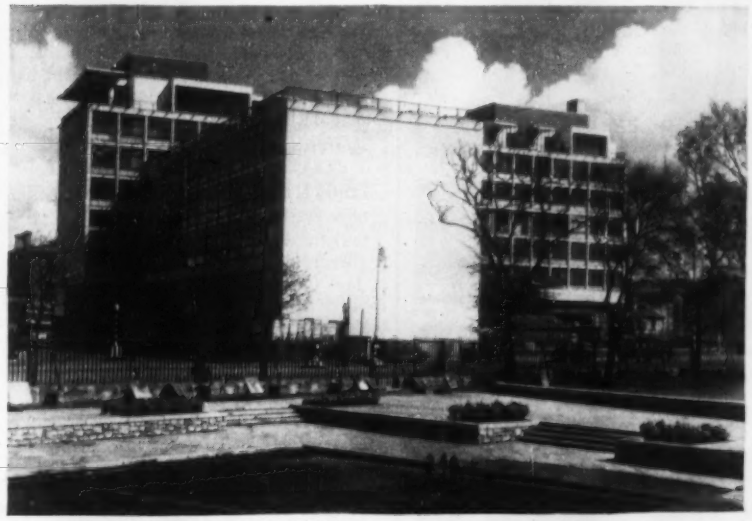
Municipal briefs . . .

• **A danger to dikes**—The California State Reclamation Board has voiced concern over a plan to create, through the construction of earth barriers, a high-level lake to provide a supplementary fresh water supply to the Sacramento-San Joaquin rivers delta. The increased pressure due to the raised lake surface level, it is contended, would increase the danger of collapse of the 1,100 mi of levees that protect the area.

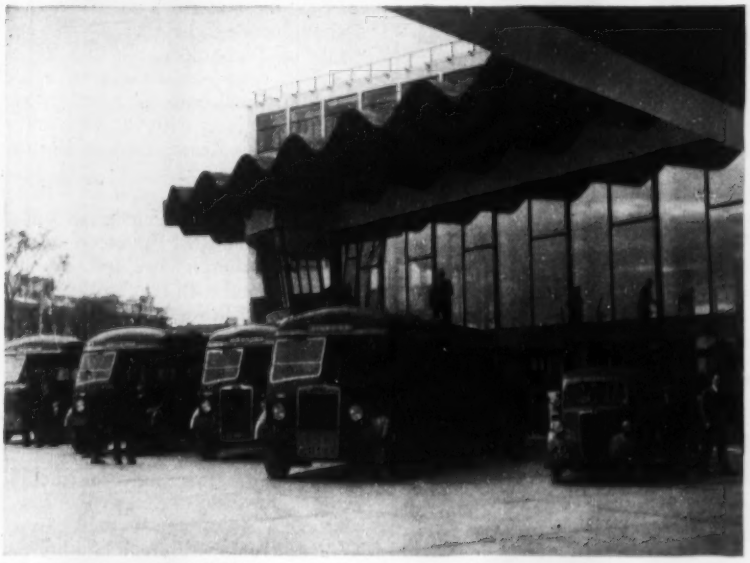
• **"Death River"**—Three Ohio state agents are investigating the source of a deadly black deposit that is killing thousands of fish in the state's Great Miami River. Plants found guilty of lethally polluting a stream can under law be charged $100 to $500 for each fish killed, but it has been customary in the past to force guilty companies to pay for the weight of the fish killed and the cost of replacement.

• **New parking authority**—The city council of Harrisburg, Pa., has decided to set up a parking authority with powers to acquire parking sites and erect buildings. The plan is to use acquired land first as parking lots and later to construct multi-level garages as the demand requires.

• **Subway court test**—Greater Cleveland's proposed $35-million downtown subway system, approved by voters last November, appears to be headed for a court case. Bond counsel for Cuyahoga County, Ohio, has recommended the test to prove the legality of its financing bond issue. The appropriation will be termed "illegal" if the case fails. A delay in the construction start for the project seems certain since a pilot case could not be filed in the Ohio Supreme Court for several months.



BUS TERMINAL in Dublin, Ireland, has government offices on the upper floors.



CORRUGATED CONCRETE canopy overhangs loading zone outside concourse.

Government offices share bus terminal

After eight years of construction and two changes of government, a new terminal for provincial bus services was opened in Dublin, Ireland, recently. One of the largest buildings ever to be erected in Ireland, the terminal is a 7-story reinforced concrete structure almost solidly walled with windows on the sides of its two wings and closed in on the ends of the wings with stone. The foundation—below spring tide levels in the river—is a reinforced concrete raft.

In the original design, the building was to house only the offices of bus companies operating from the street level concourse. But when a new prime minister took office in 1948, the structure was designated to accommodate the Department of Social Welfare. This plan, in turn, was changed when the old administration came back in 1951. Final result: the upper floors of the building are used as government offices, leaving the main floor and a mezzanine to serve as the concourse and restaurant for the bus terminal.

FLOAT CONTROLS
Multi-Circuit

Two to Sixteen Circuits for Operation by 1 Float

PUMPS
VALVES
ALARMS
LIGHTS

Write for Literature and Prices on the Bulletin 940 Roto-Trol

Water Level Controls Division of

Healy-Ruff Company

763 Hampden Ave. St. Paul 14, Minn.

Reduce costs and
INCREASE PROFITS
by renting these metal forms for concrete

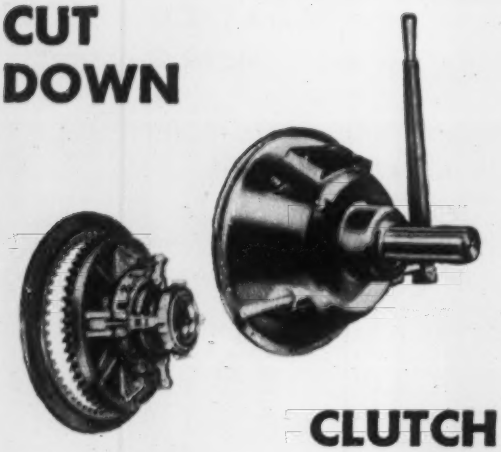
Economy Metal Forms save time, labor and material. They quickly lock together with a simple twist of a clamp. Standard units fit most jobs. Where needed, special forms can be fabricated to specification.

ECONOMY FORMS CORP.
Home Office: Des Moines, Iowa

DISTRICT SALES OFFICES: Kansas City, Mo. Omaha, Neb. • Minneapolis, Minn. • Fort Wayne, Ind. Cincinnati, Ohio • Pittsburgh, Pa. • Metuchen, N. J. Springfield, Mass. • Decatur, Ga. • Dallas, Texas Los Angeles, Calif. • Oakland, Calif. • Denver, Colo.

ECONOMY FORMS
metal forms for concrete construction

CUT DOWN



CLUTCH COSTS

ROCKFORD clutch engineers are helping product designers reduce costs — by making possible *quicker clutch assemblies, easier clutch adjustments,* and *after-sale clutch service unnecessary.* Because ROCKFORD CLUTCH precision, capacity and stamina are greater than ever, product owners' up-keep costs are lower. Now is the time to have ROCKFORD clutch engineers give *your product* the benefits of lower clutch costs plus competitive operating advantages.

Send for This Handy Bulletin

Gives dimensions, capacity tables and complete specifications. Suggests typical applications.

ROCKFORD CLUTCH DIVISION
BORG-WARNER
313 Catherine Street, Rockford, Illinois

ROCKFORD CLUTCHES

"Gunite" ..... the sand-cement product of the "CEMENT GUN," for Concrete and Masonry Repairs, Pre-Stressed Tanks, Steel Encasement and for lining Reservoirs, Sewers and Tunnels.

CEMENT GUN COMPANY
"GUNITE" CONTRACTORS
CENTRAL OFFICES—ALLENTOWN, PENNA. U.S.A.
MANUFACTURERS OF THE "CEMENT GUN"

OBITUARIES

Gunni Jeppesen, 64, former engineer with the Chicago Department of Public Works, died Jan. 20 in Cuyahoga Falls, Ohio, where he moved after his retirement in 1953. He was bridge engineer for the Illinois Division of Waterways for several years.

Louis J. Schuttner, 71, designing engineer for the Cook County highway department and former construction engineer for the Lincoln Park District, died Jan. 25 in Chicago.

Donald W. Mills, 50, civil engineer died in Tulsa, Okla., Jan. 18. He formerly was with the Tulsa district, Corps of Engineers.

George Alfred Peabody, 76, vice-president of the Cleveland Frog & Crossing Co., with which he had been associated for 50 years, died Jan. 27 in Cleveland, Ohio. He was formerly chief engineer of the firm. He was a civil engineering graduate of Case Institute of Technology.

Joseph H. Smallcomb, 52, a senior construction engineer with the Massachusetts Housing Board, died in Boston on Jan. 28.

Sterling M. Rust, 72, chairman and a founder of The Rust Engineering Co., died at Pittsburgh, Pa., Jan. 29. In 1905 he joined with two brothers, Edmond and Ellsworth, to form The Rust Engineering Co., in Birmingham, Ala. The company's headquarters later was established in Pittsburgh. The business was expanded to include chimney building, concrete construction, and finally into general industrial design, engineering and construction work.

William Dunlop White, 55, of Lexington, N. C., resident engineer with the North Carolina State Highway Department, died Feb. 1.

Albert E. Chandler, 81, who prepared the water code for the Philippine Islands, died Jan. 29 in Oakland, Calif. He served from 1905-10 with the Bureau of Reclamation as engineer. He was Nevada's first state engineer in 1903 and from 1915 to 1919 was president of the California Water Commission. He was on a board studying the California-Arizona controversy over Colorado River water rights. A graduate of the University of California, he served three years as assistant professor of irrigation there. He wrote the book, "Elements of Western Water Law."

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. O. WETZEL, L. M. WINISKI, M. E. SCIORRA, F. S. DEMBEK, Reports.
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

Mass., Salisbury—BATH HOUSE, etc.—B.A. 2/16—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, bath house, pavilion and parking house, Salisbury Beach. $300,000. Plans deposit $50, refundable. Coletti Bros., 687 Boylston St., Boston, archts. CD 5/28.

Mass., East Boston—CONTROL TOWER—B.A. 2/26—State, State Airport Management Bd., Dpt. Bldg. Constr., 38 Chauncey St., Boston, L-4-1 constr. 4 story, 54x100 ft., masonry control tower, Logan International Airport, $750,000. CD 7/7.

▲† **Mass., Bedford**—DORMITORIES, etc.—B.A. 3/2—U. S. Eng., 857 Commonwealth Ave., Boston, constr. 4 airmen's dormitories, 500-man mess, Hanscom Air Force Base, Eng-19-016-54-73, $1,500,000—$1,750,000. Plans deposit $25, refundable. CD 1/18.

▲† **N. H., Portsmouth**—WAREHOUSE, etc.—B.A. 3/5—U. S. Eng., 857 Commonwealth Ave., Boston, Mass., AC and Troop Supply Warehouse Refrigerator, Warehouse and Commissary, Portsmouth Air Force Base, ENG-1916-54-65. $2,000,000. Plans deposit $25. New Hampshire Assocs., 192 Elm St., Manchester, archts. CD 12/27/51.

BIDS ASKED—BUILDINGS

▲ **Vt., Montpelier**—HIGH SCHOOL—B.A. 2/16—City, Bd. Educ., Montpelier, high school. $1,000,000. Plans deposit $25. Webber & Erickson, 56½ Merchants Row, Rutland, archts. CD 2/7/52.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **MAINE**—Maine Turnpike Auth., 17 Bishop St., Portland,

Bethlehem Steel Co., Bethlehem, Pa. LB $3,871,250. Contr. 207;

Bancroft & Martin Rolling Mills Co., 7 Main St., South Portland, Me. LB $448,620, Contr. 207A;

Ernst Constr. Corp., 75 Lathrop St., Buffalo, N. Y. LB $1,597,580. Contr. 207B; LB $1,551,960, Contr. 207C, Sect. 2, steel fabrication for beam span bridges Augusta Exten., Portland to Augusta;

Phoenix Bridge Co., Phoenixville, Pa. and **American Bridge Div., U. S. Steel Corp.**, 525 William Penn Pl., Pittsburgh, Pa. LB $517,682. Contr. 208 Sect. 2, steel fabrication for Androscoginn River Bridge, (Augusta Exten.), Portland to Augusta. Bids Jan. 28. CD 1/14.

▲† **Morrison-Knudsen Co., Inc.**, and **Landers & Griffin, Inc.**, 122 E. 42 St., New York, N. Y., LB $9,769,086, Lot 1;

Robert A. Verrier Constr. Co., 65 Commercial St., Portland, Me., LB $876,268, Lot 2, runway, taxiways, aprons, and aircraft fueling sys., Portsmouth Air Force Base, ENG-19-016-54-35, PORTSMOUTH, N. H. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Bids Jan. 29. CD 1/4.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,

Berke-Moore Co., Inc., 8 Newbury St., Boston, Mass. CA $2,160,538, est. $3,000,000. hy. and bridge Rte. 5, Agawam and West Springfield. Bids Jan. 19. CD 12/23.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,

Brunalli Constr. Co., Main St., Southington, Conn. LB $1,319,328, est. $1,260,000. F185 (4) Contr. A hy. and bridge, Buckland and Charlmont. Bids Jan. 26. CD 12/31.

BUILDINGS

LOW BIDS AND CONTRACTS

Pasco Homes, Hubert Payson, East Millinocket, Me. Owner Builds. $450,000. HOUSING DEVELOPMENT, MILLINOCKET, ME. Prentiss & Carlisle Co., Inc., 107 Court St., Bangor, Me., archt. CD 1/29.

▲ **S. & A. Allen Constr. Co., Inc.**, 9 Newbury St., Boston, Mass. CA Est. $1,000,000. 150 RESIDENCES, BILLERICA, MASS. Billerica Homes, Inc., Dreyfus Properties, Inc., 50 Federal St., Boston, Mass. Lester Lechter, 739 Boylston St., Boston, Mass., designer. CD 2/1.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

New York—B.A. 2/16—President Queens Boro, Boro Hall, 120-55 Queens Blvd., Kew Gardens, Zone 25, grading, constr. curbs, walks, malls, electrical sys. for street lighting, police telephone sys., landscaping and for paving, etc.+ in Connecting Hy. from 30th Ave. to Northern Blvd., etc. Plans deposit $20.

† **Pennsylvania**—B.A. 2/18—U. S. Eng. 24 St. and Maryland Ave., Baltimore 3, Md., flood protection proj. Levee Unit 4B, CIVENG-18-020-54-22, Williamsport-Flood Protection Proj. Plans deposit $10. Extended date. CD 1/11.

New York—SUB-STATIONS—B.A. 2/33—New York Transit Auth., 370 Jay St., Brooklyn, Zone 1, constr. Wavecrest and Edgemere Sub-stations for Rte. 119-G. (Rockaway Rte.), Queens Boro. CD 8/31/45.

† **D. C., Wash.**—PIPE LINE—B.A. 3/4—U. S. Eng., First and Douglas Sts., N. W., Zone 25, 48 in. third-high pipe line from Dalecarlia to Reno, Wash., D. C., CIVENG-49-080-54-7. Extended date. CD 1/22.

▲ † **Labrador**—AIR BASE—B.A. About 3/11—Drake-Merritt, (Prime Contractor) 70 E. 10th St., New York 3, N. Y. will take bids for

GROUP A—BUILDINGS

Hospital, approx. 58,000 sq. ft. 100-beds, frame constr. with alt. for masonry exterior walls.
Officers' Mess, 1 story, approx. 14,000 sq. ft. masonry constr.
Theater, 1 story, approx. 7,750 sq. ft. concrete block constr. with wood trusses.
Bachelor Officers' Quarters, two 2-story, approx. 19,250 sq. ft. each bldg., wood frame constr.

GROUP B—ASPHALT PAVING

Aircraft apron, approx. 238,000 sq. yd. 4 in. thick.
Base roads and parking areas, approx. 180,000 sq. yd.

GROUP C—POL FACILITIES

three aircraft refueling hydrants, complete with piping, valves, meters, separators, pumps and small buildings, misc. pumps, piping, valves, etc. for the five bulk storage tanks.

GROUP D—HANGARS

Aircraft Wing Hangars, two, approx. 27,550 sq. ft. structural steel frame with corrugated metal siding bldgs.

GROUP E—POWER FACILITY

Central Heating & Power Plant, 1 story steel frame constr. with corrugated metal siding, three 400 psi, 60,000 #/hr. boilers, one 2,000 kw. extraction type turbo generator, switchgear, boiler water treatment equipment, pump house, cooling pond.

Portions of above facilities will be completed by the prime contractor prior to proposed bidding for subcontracting, as follows:

(a) foundations and floor slabs for the theater and wing hangars will be completed.
(b) grading, placing of base course for paving will be completed.
(c) foundations for central heating and power plant will be completed.
(d) major items of equipment requiring long lead time for delivery will be procured in advance and will be furnished to lump sum subcontractor for installation, foregoing at Goose Air Base, Goose Bay, Contr. No. DA-30-075-ENG-2250. Plans deposit $20 each group.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction

(Name in order of Listing)

Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Latin America
Public Buildings
Commercial Buildings
Industrial Buildings
Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects invloved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over.
B.A. Bids Asked
ENR Engineering News-Record
CD Engineering News-Record Construction Daily

BIDS ASKED—BUILDINGS

N. Y., Lockport—HIGH SCHOOL—B.A. 3/3—Bd. Educ., 60 Chestnut St., high school. Plans deposit $25. Schmill & Hoffmeyer, 1342 Prudential Bldg., Buffalo, N. Y., archts. CD 1/7/48.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

MARYLAND—State Rds. Comn., 108 E. Lexington St., Baltimore, Zone 2,

Wright Constr. Co., Box 580, Columbus, Ga. LB $180,702, hy. bridge over P.R.R. and pedestrian tunnel, North East, Constr. CD 359-2-215, Cecil Co.

Jas. Julian, Inc., 405 S. Dupont Rd., Elsmere, Del. LB $468,886, grading drainage, surf. 3.663 mi. U. S. Rte. 13, near Pocomoke City, Contr. WO 318-1-120, Worcester Co.;

Sam Finley, Inc., Box 2389, Roanoke, Va. LB $323,228 grading, drainage, surf. dual hy. 3.453 mi. U. S. Rte. 50, near Cambridge, Contr. D 240-1-120, Dorchester Co. Bids Jan. 26. CD 1/11.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 North Office Bldg., Harrisburg,

Black Top Paving Co., Oakland Ave., Washington, Pa., LB, $144,129, wid'n. 14,111 ft. road, L.R. 02003 (3) Findlay Twp., Allegheny Co.; LB $145,452, overlay and wid'n. 14,084 ft. road, T.R. 18, Raccoon Twp., Beaver Co.; LB, $107,609, wid'n. 28,557 left and right road T.R. 30, Greene and Hanover Twps., Beaver Co.;

Foster Grading Co., R.D. 2, Jackson Center, Pa., LB, $181,307, surf. 38,884 ft. existing road T.R. 58, Greenville Boro, Jefferson and Delaware Twps., Mercer Co.;

Charles A. Imel & Son, 34 Greenville Ave., Clarion, Pa., LB, $581,869, wid'n. 80,139 ft. road T.R. 219, Westmore, Hamlin & Lafayette Twps., Kane Boro McKean Co.;

Indiana County Contg. Co., 146 S. Liberty St., Blairsville, Pa., LB, $139,924, wid'n. 34,578 ft. road T.R. 220, King and Kimmell Twps., Bedford Co.;

Indyk Bros. Constr. Co., 539 Vermont St., McKeesport, Pa., LB, $257,467 wid'n., overlay 11,975 ft. road, T.R. 31, Forward Twp., Allegheny Co.;

The Kelley & Meyer Co., 1211 Gibson St., Youngstown, O. LB, $160,172, surf. 32.285 ft. road T.R. 66, Elk and Washington Twps., Shippenville Boro, Clarion Co.;

J. Paul Laubach, Box 68, Benton, Pa., LB, $195,225, bit. surf. 14,748 ft. T.R. 44, Washington and Gregg Twps., Lycoming and Union Counties;

Paul V. Kebert, R.D. 6, Meadville, Pa., LB, $179,225, surf. 33,461 ft. road T.R. 20; 6; 277. Cities of Erie and Corry; Wayne and Concord Twps., Erie Co.;

Slaw-Landis Paving Co., Bala Cynwyd, Pa., LB, $67,318, wid'n. 5,388 ft. road, L.R. 23051, Upper Darby and Haverford Twps., Delaware Co. Bids Jan. 27. CD 1/6.

▲ **Leo Butler Co.**, 9217 51 Ave., College Park, Md., CA, $1,440,646, constr. Sect. 3, East Branch of Piney Branch Trunk Sewer, Kansas Ave., Randolph St. to Varnum St. N.W., WASH, D. C. D. C. Govt., 499 Pa. Ave. N.W., Wash., D. C Bids Dec. 17. CD 12/22, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Cauldwell-Wingate Co.**, 101 Park Ave., New York 17, N. Y., CA $2,000,000. 17 story OFFICE, 130 E. 59 St., NEW YORK, N. Y. Federation of Jewish Philanthropies of New York, 71 W. 47 St., New York 19, N. Y. CD 5/2/52.

▲ **Nicholas Angleton**, c/o William G. Chirgotis, archt., 968 Stuyvesant Ave., Union, N. J. Owner Builds. $3,500,000. 100 HOUSES on 50-acre tract on Great Hills Rd., SHORT HILLS, N. J.

† **Somers Constr. Co.**, Bala Cynwyd, Pa., LB, $617,617, TB-NP Bldg. 57 conversion, Veterans Administration Hospital, COATESVILLE, PA. Veterans Admin., Munitions Bldg., Wash., D. C. Bids Jan. 26. CD 1/18.

Jack Meyerhoff & Sons Co., Court Square Bldg., Baltimore, Md. Owner Builds. $664,000. seventy-six 2 story, row type HOUSES, 1200 block Cedarcroft Rd., BALTIMORE, MD. CD 5/8/53.

Raymond Burrows, 4813 Bethesda Ave., Bethesda, Md. CA Est. $300,000. SALES and SERVICE BLDG., 7020 Arlington Rd., BETHESDA, MD. Capitol Cadillac Oldsmobile Co., 1222 22 St. N.W., Wash., D. C. Arthur Anderson, 1726 M St. N.W., Wash., D. C., archt. Awarded Jan. 25.

Wildberger-Best Constr. Co., 2025 E. North Ave., Baltimore, Md. CA $743,322. POLICE and FIRE DEPARTMENT BLDGS. and TRAINING BLDG., TOWSON, MD. Comrs. Baltimore Co., Court House, Towson, Md. CD 1/22, under LB.

Kirtley Constr. Co., Inc., Beverly Hills, Towson, Md. Owner Builds. $639,000. 71 brick HOMES, Aldworth and Fulbrook Rds., BEVERLY HILLS, TOWSON, MD.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

† **N. C., Jacksonville**—TELEPHONE EXCHANGE—B.A. 3/9—Dist. P. Wks., Headquarters, Fifth Naval District, U. S. Naval Base, Norfolk, Zone 11, Va., telephone exchange bldg., U. S. Marine Corps Air Facility (Petersfield Point) New River, Spec. 41861. Plans deposit $10.

† **Va., Little Creek**—ELECTRICAL DISTRIBUTION, etc.—B.A. 3/9—Dist., P. Wks. Office, Headquarters, Fifth Naval Dist., U. S. Naval Base, Norfolk, Zone 11, electrical distr. and sub-stations, U. S. Naval Amphibious Base, Spec. 37642. Plans deposit $30. CD 3/27.

† **Va., Little Creek**—STEAM PLANT—B.A. 3/16—Dist. P. Wks. Office, Headquarters, Fifth Naval Dist., U. S. Naval Base, Norfolk, Zone 11, steam plant, U. S. Naval Amphibious Base, Spec. 37620. Plans deposit $75.

BIDS ASKED—BUILDINGS

N. C., Kinston—DORMITORIES—B.A. 2/17—N. C. Hospitals Bd. Control, Capitol Bldg., Raleigh, (A) dormitory for single girls (B) dormitory for married couples. Plans deposit $35.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Espy Paving & Constr. Co., Bay St., Savannah, Ga., CA, $345,119, WW imprvs., SAVANNAH, GA. City, City Hall, Savannah, Ga. CD 11/30/50. Bids Jan. 22.

Edelblut Constr. Co., West Palm Beach, Fla., CA, $143,030, water treatment plant;

Boyce Co., 504 Penna St., Clearwater, Fla., CA, $186,958, water mains, WINTER HAVEN, FLA. City, City Hall, Winter Haven, Fla. Bids Jan. 2. CD 12/11.

Girvin & White Constr. Co., 1226 W. Forsyth St., Jacksonville, Fla., CA, $261,295, sanitary sewer imprvs., WINTER HAVEN, FLA. City, City Hall, Winter Haven, Fla. Bids Jan. 2. CD 12/11.

MISSISSIPPI—State Hy. Dpt., T. C. Robbins, dir., Jackson,

M & W Constr. Co., Tupelo, Miss. CA $154,747. grade, drain, culverts, bridges 1.892 mi. Miss. Hy. No. 3 between Savage and Crenshaw, F 010-3 (4), Tate Co.;

Alvie C. Goolsby, Ripley, Miss. CA $197,850. grade, drain, culverts, bridges 5.665 mi. Miss. Hy. No. 30 between Pleasant Ridge and New Albany, F 044-1 (10), Union Co.;

O. J. Stanton & Co., Greenwood, Miss. CA $82,864. grade, drain, culverts, 3.301 mi. Miss. Hy. No. 4 between jct. with Miss. Hy. No. 3 and Strayhorn, S 0910 (2)A, Tate Co. Grand total $435,461. Bids Jan. 26, CD 1/4.

KENTUCKY—Commonwealth of Ky., Dpt. Hys., Frankfort,

W. C. Snider, Danville, Ky. LB $286,138. traffic bound limestone 3.619 mi. Liberty-Russell Springs Rd., S 142 (4), SP 23-81, Casey Co.;

Kelly Contg. Co., Fincastle Bldg., Louisville, Ky. LB $132,008. bit. surf. Class I 0.963 mi. North Main St. and Cumberland Ave. in Barbourville, S 5 (2), S 308 (3), SP 61-210, Knox Co.;

Carey Constr. Co., Citizens Bank Bldg., Lexington, Ky. and **H. C. Adams**, Winchester, Ky. LB $327,546. bit. surf. Class I water bound macad. base 6.072 mi., Cave City-Mammouth Cave Rd., S 285 (2), Spec. 5-292, Barren Co.;

Winston Ford Co., Prestonsburg, Ky. LB $66,784, traffic bound limestone 2.151 mi. Whick-Bowling Creek Rd., S 219 (2), Spec. 13-907, Breathitt Co.; LB $155,329. traffic bound limestone 3.493 mi. Williamson-Nolan W. Va. Rd., S 529 (1), RS 98-43, Pike Co. Bids Jan. 22;

project withdrawn from letting Jan. 22, c. conc. base, wid'n, bit. surf. 4.381 mi. The Elizabethtown-Louisville Rd., The Brandenburg-Louisville Rd., FI 79 (20), F 203 (2), SP 82-3, SP 82-23, Meade Co. CD 1/6.

† **Diehl Pump & Supply Co.**, 800 Fehr Ave., Louisville, Ky. LB base $337,378, est. $465,105, Alternate $333,681, est. $453,390. exten. water sys., 6 new wells, valves, pits, pumps, 1¼ mi. access and 2¼ mi. power line, FORT KNOX, KY. - U. S. Eng., 830 W. Broadway, Louisville, Ky. Bids Jan. 26. CD 1/11.

Inman Constr. Co., 2900 W. Jefferson St., Louisville, Ky. LB $349,531. gymnasium addn., Murray State College, MURRAY, KY. State Div. Purchases, Frankfort, Ky. Bids Jan 26. CD 1/13.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **M. T. Broyhill & Sons**, 4624 Lee Hy., Arlington, Va. Owner Builds. Approx. $6,500,000. 535 one story masonry RESIDENCES, part with and part without bsmnts., near ANNANDALE, VA.

▲ **Frank J. Murphy, Jr.**, and **Shell Constr. Co.**, 1429 Nash St., Arlington, Va., Owner Builds, $1,400,000, 7 story, 208-unit, rein.-con., masonry APARTMENT, ARLINGTON, VA. J. P. Fitzsimmons, 1731 New Hampshire Ave. N.W., Wash., D. C., archt. CD 12/17.

▲ **Daniel Constr. Co.**, 429 N. Main St., Greenville, S. C. CA. Est. $3,000,000. PLANT for Wellman Combing Co., JOHNSONVILLE, S. C. Nichols & Co., Inc., 140 Federal St., Boston, Mass. Lockwood Greene Engineers, Inc., 10 Rockefeller Plaza, New York 20, N. Y., engr. CD 1/29.

Kirkpatrick & Pierson, P.O. Box 55, Gainesville, Fla., CA, $429,000, AGRICULTURAL ENGINEERING BLDG., University of Florida, GAINESVILLE, FLA. State Bd. Control, Education Bldg., Florida State University, Tallahassee, Fla. Bids Jan. 20. CD 1/14.

Caldwell & McCann, P.O. Box 477, Baton Rouge, La. CA $305,070. Walnut Hills Elementary SCHOOL, BATON ROUGE, LA. East Baton Rouge Parish School Bd., Baton Rouge, La. Bids Jan. 20.

▲ **Wilkinson & Snowden, Inc.**, Commerce Title Bldg., Memphis, Tenn. Owner Builds, $300,000, 20 RESIDENCES, MEMPHIS, TENN.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

Ill., Granite City—B.A. 2/17—Bi-State Development Agency, 915 Olive St., St. Louis 1, Mo., filling in wharf area of Chain of Rocks Canal Harbor, near here, involving 200,000 cu. yd. material to be hydraulically dredged from canal bottom to fill 39 steel pile cells already in place. Milton M. Kinsey, 511 Locust St., St. Louis, 1, Mo., engr.

Michigan—B.A. 2/17—State Hy. Dpt., 213 South Capitol Ave., Lansing, utility alterations 1.098 mi. John C. Lodge Expressway Glendale Ave. to Chicago Blvd., incl. sewers, water, light and power. $460,000. Plans deposit $3, no refund.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **U. S. Eng.**, 420 Locust St., St. Louis, Mo., rejected bids Dec. 30, placing hydraulic fill in levee borrow pit in Degognia and Fountain Bluff Levee & Drainage Dist. Proj. Item VI-A (2), Jackson Co., CIVENG-23-065-54-59, ILLINOIS, LB, $431,250. CD 1/12, under LB.

▲ **ILLINOIS**—State Div. Hys., Springfield,

Arcole Midwest Corp., 3225 Main St., Evanston, Ill., CA, $760,906 c. conc. base course 8.01 mi. and conc base course wid'n. 3.51 mi. c. conc. paving and 1 bridge, U.S. 150, Woodford and McLean Counties;

S. J. Groves & Sons Co., 1104 W. Reynolds St., Springfield, Ill., CA, $1,472,500, c. conc. 10.99 mi. U.S. 66, Montgomery and Macoupin Counties. Bids Jan. 19, awarded Jan. 27. CD 1/22, under LB.

▲† **Forrester Constr. Co.**, 600 Sill Bldg., Flint 3, Mich. CA $1,399,244. air force reserve training center facilities, SELFRIDGE AIR FORCE BASE, MICH. U. S. Eng., 1900 Cadillac Tower, Detroit 26, Mich. Bids Jan. 14. CD 12/22.

BUILDINGS

LOW BIDS AND CONTRACTS

Norbury Homes, Inc., 120 Mohawk Dr., Anderson, Ind., Owner Builds. $300,000 or more, HOMES in Indiana Meadows, ANDERSON, IND.

Bauer Bros. Constr. Co., 424 Lebanon Ave., Belleville, Ill. CA, 1 and 2 story, bsmnt., 140x150 ft., Crossbar Dial No. 5 TELEPHONE EXCHANGE, BELLEVILLE, ILL. Southwestern Bell Telephone Co., 1010 Pine St., St. Louis, 1, Mo. CD 11/18.

Felmley-Dickerson Co., Bloomington, Ill., CA, $311,000. general contract 2 story, 62x168 ft., brick, steel William Edward Shaw ACADEMIC HALL, BLOOMINGTON, ILL. Illinois Wesleyan University, Bloomington, Ill. Schaeffer, Hooton & Wilson, Peoples Bank Bldg., Bloomington, archts.

Keno Constr. Co., 3080 Skokie Hy., Highland Park, Ill., CA, $859,341, general contract Oakland Park School, Bluff and Sterling Sts. and Northlawn School, Park St. between 1 and 4 Sts., STREATOR, ILL. School District 45, La Salle Co., J. E. Drum, supt. Schools, 204 S. Bloomington St., Streator, Ill. Bids Jan. 12. CD 12/23.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

† **Tex., Del Rio**—OFFICERS QUARTERS—B.A. 2/24—U. S. Eng., Box 1229, Galveston, bachelor officers quarters, Laughlin Air Force Base, Inv. No. Eng-41-243-54-57. $175,000-$325,000. CD 1/19.

BID ASKED—BUILDINGS

▲ **Tex., Galveston**—UNIVERSITY BLDGS.—B.A. 2/23—University of Texas, Main Admin. Bldg., Austin, 2 story brick, concrete frame dormitory for 72-student nurses, $375,000; 2 story, concrete, brick dormitory for 72 residents and interns, $375,000; 2 story rein.-con. frame, brick 72-capacity dormitory for Women Medical students, $350,000; 3 story, rein.-con., brick exterior 30-unit apartment for married residents and interns., $325,000. Bid date changed. Mark Lemmon, 1210½ Main St., Dallas, superv. archt. Cameron D. Fairchild & Assocs., 2626 Westheimer St., Houston, archts. CD 1/9.

▲ **Tex., Prairie View**—COLLEGE BLDGS.—B.A. 2/23—Agricultural & Mechanical College of Texas, 331 Admin. Bldg., College Station, 90-room addn. to Alexander Hall for Boys, $395,000; 80-room addn. to Suarez Hall for Girls, $320,000; commissary and storage, $200,000. Plans deposit $30 each. P. G. Norton, Box 1169, Bryan and Arch C. Baker; college archt., 331 Admin. Bldg., College Station, archts. J. W. Hall, Jr., Bryan, and Francis J. Niven, 3908 Main St., Houston, engrs. CD 1/19.

Tex., Deer Park—GYMNASIUM—B.A. 2/25—Deer Park Independent School Dist., Deer Park, 1 story, 113x177 ft., brick on tile steel frame, etc. gymnasium. $300,000. Plans deposit $25. Emory White, 666 M & M Bldg., Houston, archt. B. Johnson, 4926 Travis St., and Walter P. Moore, 2 Pinedale St., Houston, engrs. CD 1/25.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ † **Clarkson Constr. Co.**, 4133 Gardner St., Kansas City, Mo. CA $1,441,957. AFRTC apron at Grandview Air Force Base, Inv. 23-028-54-34, GRANDVIEW, MO. U. S. Eng., 601 Davidson Bldg., Kansas City, Mo. Bids Jan. 22. CD 1/5 under LB.

▲ **M. K. Eby Constr. Co.**, 610 N. Main St., Wichita, Kan. CA $1,513,000. Sewage plant, WICHITA, KAN. City, Wichita, Kan. CD 1/27, under LB.

▲ **TEXAS**—State Hy. Comn., Austin,

Ernest Loyd, P.O. Box 1120, Fort Worth, Tex., CA $1,629,195. grading, drainage facilities, bridges and c. conc. 2.136 mi. Hy. U.S. 81, Proj. UI 473 (11), Tarrant Co. Bids Jan. 21, awarded Jan. 26. CD 1/26, under LB.

† **Wm. E. Goetz & Sons**, Box 7111, Hackberry Station, San Antonio, Tex., LB $428,888, rehabilitation, remodeling 28 B.O.Q. cadet quarters bldgs., NOY 80263, Chase Field, Naval Auxiliary Air Station, BEEVILLE, TEX. U. S. Govt., Officer in Charge of Constr., Admin. Bldg. No. 1, Naval Air Station, Corpus Christi, Tex. Bids Jan. 26.

▲ † **Austin Contg. Co.**, and **Fort Worth Constr. Co.**, Box 531, Fort Worth, Tex., LB, $1,177,451, est. $750,000-$1,500,000, new N-S runway and taxiway, E-W runway constr. and apron extens. Reese Air Force Base, Serial No. Eng-29-005-54-62, LUBBOCK, TEX. U. S. Eng., Box 1538, Albuquerque, N. M. Bids Jan. 27.

Orchard Pipeline Co., Orchard, Colo. Owner Builds, $811,250, pipe line for oil from Orchard to Merino, COLORADO.

BUILDINGS

LOW BIDS AND CONTRACTS

John O'Brien Constr. Co., 2634 Clara Ave., St. Louis 20, Mo. CA 3 story, brick, rein.-con. ASSEMBLY HALL, BELLEFONTAINE NEIGHBORS (ST. LOUIS 15 P.O.), MO. St. Jerome's Catholic Parish, Rev. James T. Murphy, pastor, 1213 Chambers Rd., Bellefontaine Neighbors, Mo. Maurice Carroll, 5473 Delmar Blvd., St. Louis 12, Mo., archt.

Geo. Moeller Constr. Co., 3007 Wyoming St., St. Louis, Mo. CA Est. $300,000. 1 story, 120x244 ft., brick, steel, concrete SUPERMARKET, Manchester Rd. east of Kirkwood Rd., KIRKWOOD (ST. LOUIS 22 P.O.), MO. Bettendorf Select Foods, Inc., 5121 Manchester Ave., St. Louis 10, Mo. Bids Oct. 15. CD 10/5.

▲ **Rex D. Kitchens Constr. Co.**, Box 3006 S. Austin St., Austin, Tex., LB $2,377,000, est. $2,377,050, 2 story Junior HIGH SCHOOL, LUBBOCK, TEX. Lubbock Independent School Dist., Lubbock, Tex. Bids Jan. 26. CD 12/16.

Bellco Industrial Engineering & Piping, 3612 Clinton Dr., Houston, Tex. CA $648,225. Phase 1 compressor shelter, control room, storage bldg., TEXAS CITY, TEX. Carbide & Carbon Chemicals Co., Div. Union Carbide & Carbon Corp., 437 MacCorkle Ave. S.W., South Charleston, W. Va. CD 1/19, under LB.

Smith Building Co., Inc., Box 796, Waco, Tex., LB $377,656. 2 story, bsmnt., 60x144 ft. ADMINISTRATION, WACO, TEX. Methodist Home, 619 Herring Ave., Waco, Tex. Walter Cocke, Jr. & Co., 1507 Franklin Ave., Waco, Tex., archt. R. Grimmer, W. T. Waggoner Bldg., Fort Worth, and A. C. McAdams, Majestic Bldg., Fort Worth, Tex., engrs. Bids Jan. 22.

† **McNichol Constr. Co.**, 33 S. Fox St., Denver, Colo., LB, $453,990, general contract 1 story, brick Katherine Gust Grade SCHOOL, DENVER, COLO. School District No. 1 City and Denver Co., 414 14 St., Denver, Colo. Bids Jan. 31.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

▲ **Calif., Los Angeles**—B.A. 2/19—Los Angeles County Flood Control District, 2250 Alcazar St., Los Angeles, Proj. 36 Van Nuys Ave. and Tyrone Ave. Storm Drain, Van Nuys, $1,288,100. Plans deposit $2.58. H. E. Hedger, c/o owner, engr. CD 11/7/52.

† **Ore., Portland**—DOCK—B.A. 2/24—U. S. Eng., 628 Pittock Block, Zone 5, removing existing dock and constr. new dock, incl. placing dumped stone revetment at U. S. Govt. Moorings, 8010 N.W. St. Helens Rd., Serial No. CIVENG-35-026-54-88.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ † **Fred J. Early Jr. Co., Inc.**, Box 114, Torrance, Calif. and **Stolte Inc.**, 8451 San Leandro St., Oakland, Calif. CA, $2,977,000 runways and taxiways, airfield lighting grading, drainage, PALMDALE, CALIF. Lockheed Aircraft Corp., Box 551, Burbank, Calif. Bids Dec. 1, awarded Jan. 22. CD 12/7, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

Empire Steel Bldg. Co., 2137 N. Marianna Ave., Los Angeles, Calif., CA, $244,000, 1 story, 44,000 sq. ft. steel frame WAREHOUSE, POMONA, CALIF. Pomona Tile Co., 627 N. La Brea St., Los Angeles, Calif. Robt. Greenwald, 2137 N. Marianna Ave., Los Angeles, Calif., engr. CD 1/8.

CANADA

BIDS ASKED—BUILDINGS

Ont., Long Branch—WAREHOUSE—B.A. 2/17—Defence Constr. Ltd., 56 Lyon St., Ottawa, steel frame storage warehouse. $300,000. Plans deposit $25.

SOON LETS CONTRACT—BUILDINGS

▲ **Ont., Windsor**—PLANT—B.A. 2/9—Chrysler Corp. of Canada Ltd., 2450 Chrysler Center, soon lets contract 1 and 2 story, part 520x600 ft., steel, granite brick, motor plant, $2,000,000. Wm. R. Souter & Assocs., 36 James St. S., Hamilton, archts. CD 11/18.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

H. Harchessault & Fils Ltee, 416 Jean Talon St. W., Montreal, Que., CA, Approx. $272,100, clearing and site work at new army camp, Gagetown, near FREDERICTON, N. B. Defence Constr. Ltd., 56 Lyon St., Ottawa, Ont. CD 8/52, under Public Buildings.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Model Homes Ltd.**, West Kildonan, Man., Owner Builds, $2,400,000, 300 concrete, brick DWELLINGS, WEST KILDONAN, MAN. CD 1/7/52.

Eastern Woodworkers Ltd., Brother St., New Glasgow, N. S., CA, $428,790, Garrison BARRACKS, Canadian Army, HALIFAX, N. S., Defence Construction (1951) Ltd., 1032 Gottingen St., Halifax, N. S. Bids Dec. 9, awarded Jan. 15. CD 11/23.

▲ **Fried Constr. Co. Ltd.**, 2580 St. Clair Ave. W., Toronto, Ont., CA, $1,000,000, 2 story, bsmnt., 180x360 ft. TEACHERS COLLEGE, 100x150 ft. interior court classrooms, auditorium, dining room, etc. TORONTO, ONT. Dpt. P. Wks., Parliament Bldgs., Toronto, Ont. Bids Dec. 3, awarded Jan. 25. CD 11/16.

U. S. POSSESSIONS

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **Walker-Moody Constr. Co. Ltd.**, 2927 Mokumoa St., Honolulu, Hawaii, CA, $286,000 permanent enlisted womens barracks, storage room addn. to Building 1095 and Storehouse addn. to Building 208, Marine Corps Air Station, KANEHOE, T. H. Officer in Charge of Constr., 14th Naval Dist., P. O. Box 94, c/o F.P.O. San Francisco, Calif. CD 12/21/51.

FOREIGN

BIDS ASKED—HEAVY CONSTRUCTION

Iraq—B.A. 4/15—Directorate General of Municipalities, Ministry of Interior, Govt. of Iraq, supply, erection, construction and complete installation of flocculation and settlement tanks, rapid precipitant mixes, chemical dosing apparatus, rapid pressure filters, chemical sterilizing apparatus, pump and power house building, overhead travelling crane, electrically operated centrifugal pumping plant, suction and rising mains, elevated service tank, modifications and renovation of existing elevated service tank station sewage disposal sys. and all auxiliary works comprised in the new water supply scheme for KUT of approx. 1 m. g. capacity per day.

Proposed Projects

WATER SUPPLY

▲ **Mass., Holyoke**—City, Water Dpt., City Hall, reservoir and dam, Manham Dam, Southampton, $3,000,000, Charles Maguire Assoc., 1013 Turks Head Bldg., Providence, R. I., consult. engrs. CD 10/29/51.

Mo., Kirkwood (St. Louis 22 P.O.)—City, Wm. C. Mason, clk., voted $624,000 bonds Jan. 19, imprvs., exten. water sys. Horner & Shifrin, Shell Bldg., 1221 Locust St., St. Louis, Zone 3, consult. engrs. C. T. Temme, 139 S. Kirkwood Rd., city engr. CD 12/29.

N. C., Valdese—City, WW imprvs. $550,000.

▲ **O., Cleveland**—City, Div. Water & Heat, City Hall, Zone 14, Northfield Rd. Water Main No. 2, $200,000; small mains, meters and other water equip. $1,000,000; water main, Pleasant Valley Rd. $1,000,000; Clague Rd. water intake from Lake Erie, $5,500,000; water mains, third high pressure sys. from Nottingham Filtration Plant to southeast sect. of city, $600,000 water mains, second high pressure sys. from Nottingham filtration plant southeast sect. of city, $2,160,000. Frank J. Schwemler, comr. Div. Water & Heat, City Hall, Zone 14, engr. CD 4/1.

▲ **Okla., Muskogee**—City, City Hall, voted bonds Jan. 19, water line from Fort Gibson Dam. $2,000,000. John L. Davis, Muskogee, engr. CD 12/23.

SEWERS, WASTE DISPOSAL

▲ **Calif., Los Angeles**—Los Angeles County Sanitation District 22, 2020 Beverly Blvd., voted $5,000,000 bonds, sewage facilities 38 mi. trunk lines, San Dimas, West Covina Los Angeles Co. A. M. Rawn, c/o owner, engr. CD 12/11.

▲ **Calif., Redondo Beach**—City, 122 Emerald St., Phase II and III, sewerage system construction, 32 mi. sewers and 6 pump stations, $1,877,540. Koebig & Koebig, 3142 Wilshire Blvd., Los Angeles, consult. engrs. CD 8/27/51.

Ind., Michigan City—City, Bd. P. Wks., City Hall, sewage treatment works, $700,000. Boyd E. Phelps, Inc., 1000 Washington SSt., consult. engrs. CD 2/17.

Tex., Brownwood—City, Jack Broad, mgr., voted bonds Jan. 9, sewer line exten. $175,000. J. S. Palmer, city engr.

Utah, Provo—Provo City Comn., City Hall, outfall mains for sewerage. $500,000. Temple & Link, 500 Dooley Bldg., Salt Lake City, consult. engrs. CD 12/24/52.

Wis., Whitefish Bay—Village of Whitefish Bay, 801 E. Lexington Blvd., Milwaukee, Zone 11, storm sewerage system, $549,320. R. E. Cahill, village engr.

BRIDGES

▲ **CONNECTICUT**—State of Conn., G. Albert Hill, State Hy. Comn., State Office Bldg., Hartford.

East Hartford-Hartford—State St. Bridge across Connecticut River at foot of State St. $8,000,000. E. Lionel Pavlo, 7 E. 47 St., New York, N. Y., consult. engr. CD 4/3/50.

Imperial

THE *Finest* TRACING CLOTH

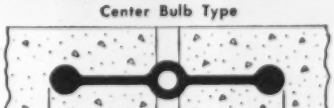
Imperial is known in drafting rooms all over the world as the traditional quality tracing cloth.

With the background of decades of experience, its makers have pioneered in modern improvements to maintain Imperial as the finest tracing cloth made.

Servicised Rubber WATERSTOP

FOR EXPANSION JOINTS

Center Bulb Type



Servicised Rubber Waterstops meet all standard engineering specifications. Made of durable, elastic, cured rubber compound.

Both types available in 6", 9" and 12" widths in any required length.

FOR CONSTRUCTION JOINTS

Flat Type

Write for the Servicised Products Catalog. Sent without obligation.

SERVICISED PRODUCTS CORP.
6051 W. 65th ST. • CHICAGO, ILL.

IF IT'S A WET JOB

PLAY SAFE! ASK FOR A DEWATERING ANALYSIS BY

GRIFFIN WELLPOINT CORP.

881 East 141st Street, New York 54, N. Y.
Hammond, Ind. Houston, Tex. Jacksonville, Fla.

▲ **Minn., Minneapolis**—City, Mrs. A. Finkle, clk., constr. 5 span steel, concrete bridge over Mississippi River at Lowry Ave. replacing existing bridge, $2,000,000. E. Gorgenson, bridge engr.

Tex., Dallas—City, City Hall, Main and Harwood Sts., constr. overpass to connect north and south sects. of Marsalis Ave. through Marsalis Park Zoo and incl. overpass across Clarendon St. and Santa Fe Ry. $650,000. Powell & Powell, Thomas Bldg., consult. engrs.

STREETS AND ROADS

▲ **Minn., Minneapolis**—City, Mrs. A. Finkle, clk., repave Washington Ave. between Third and Lyndale Aves. North. $1,100,000. H. Erickson, city engr. G. Bodien, asst. engr. in charge of paving.

Mo., St. Joseph—City, resurf. for 88 projects, $553,000. CD 4/23.

▲ **OKLAHOMA**—State of Oklahoma, Capitol, Oklahoma City, approved extension of Oklahoma Turnpike, incl. 300 mi. addnl. roads, from Tulsa to State Line near Joplin, Mo. from Oklahoma City to State Line near Wichita, Kan. and to Texas State Line near Wichita Falls, via Lawton. CD 1/5.

▲ **Tex., San Antonio**—Bexar County Road Dist. 2, Court House, voted bonds Jan. 21, farm to market roads, $270,000; road drainage, $100,000; completion Loop 13 around city, 12.2 mi., $630,000; exten. Hy. 87 north from Basse Rd. to Kendall Co. line, 20½ mi. $600,000. C. I. Swan, co. engr. CD 12/29.

▲ **Tex., San Antonio**—City, Jack White, mayor, City Hall, Military Plaza, defeated bonds Jan. 23, freeway work, $12,500,000; widening, retopping S. New Braunfels Ave. $315,000; street imprvs., paving, Part 1, $750,000; Part 2, $715,000; Part 3, $845,000; misc. street imprvs., repairing, resurfacing in various sections of city, $1,832,276. CD 12/30.

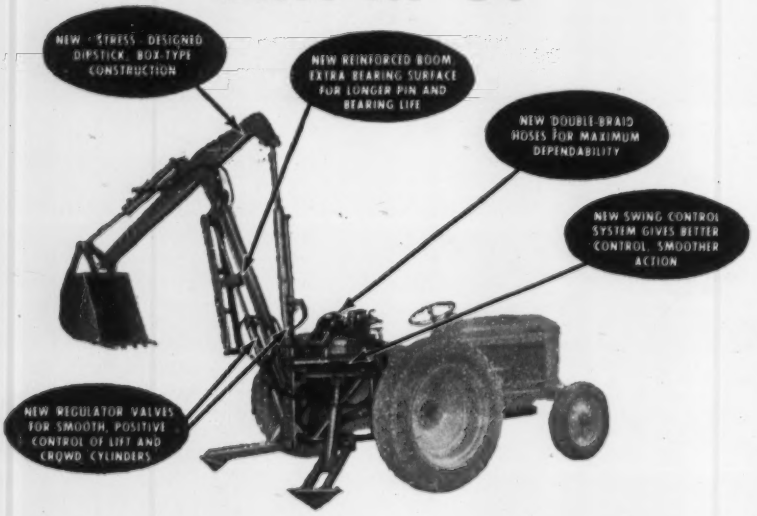
EARTHWORK, WATERWAYS

▲ **California**—Los Angeles Dpt. Water & Power, 207 S. Broadway, Los Angeles, dam, reservoir and power plant on Owens River, Bishop, Inyo Co. $2,776,000. S. M. Morris, c/o owner, engr.

▲ **Ill., Chicago**—Chicago Regional Port District, 160 N. La Salle St., constr. Lake Calumet development incl. harbor, dock, warehouses, dredging channel $49,000,000. CD 4/25/45.

▲ **Tex., San Antonio**—City, Jack White, mayor, City Hall, Military Plaza, deefated bonds Jan. 23, appurtenant drainage on Banks San Antonio River as Flood Control. $200,000; imprv. portion to San Antonio River, dredging,. widening, straightening, $942,724. CD 12/30.

New reasons why.. Sherman Power Diggers give you More for '54


NEW STRESS DESIGNED DIPSTICK, BOX-TYPE CONSTRUCTION
NEW REINFORCED BOOM, EXTRA BEARING SURFACE FOR LONGER PIN AND BEARING LIFE
NEW DOUBLE-BRAID HOSES FOR MAXIMUM DEPENDABILITY
NEW SWING CONTROL SYSTEM GIVES BETTER CONTROL, SMOOTHER ACTION
NEW REGULATOR VALVES FOR SMOOTH, POSITIVE CONTROL OF LIFT AND CROWD CYLINDERS

Important new features, combined with advantages proven by thousands of users, add up to more production for your digging dollar! The Sherman Hydraulic Power Digger is designed and built for that wide range of job requirements beyond the economical use of hand labor and below the efficient use of larger equipment. Yes, between the smallest and largest jobs, you'll find there's always a place for your Sherman Power Digger! Ask your nearby Sherman dealer for an on-the-job demonstration today. Write for free literature, Dept. C-49.

FREE Literature on new features. Write for your copy now.

Sherman PRODUCTS, INC. ROYAL OAK, MICHIGAN

Designed, Engineered and Manufactured jointly by SHERMAN PRODUCTS, Inc., Royal Oak, Mich. WAIN-ROY CORPORATION, Hubbardston, Mass.

Patent No. 2,303,825. Other patents pending.

AIRPORTS

▲† **Ariz., Phoenix**—HANGAR, etc.—U. S. Eng. 751 S. Figueroa St., Los Angeles, Calif., plans by John Brenner & Assoc., 114 W. Adams St., hangar without shop, $652,000; armament shop, $67,000; radio and radar maintenance shop, $83,000; utilities, $18,000, all at Luke Air Force Base. CD 3/27/51.

▲† **Calif., Muroc**—HANGAR, etc.—U. S. Eng., 751 S. Figueroa St., Los Angeles, plans by Albert C. Martin & Assocs., 333 S. Beaudry St., Los Angeles, 381,400 sq. ft. modification hangar and maintenance shop, Edwards Air Force Base, $6,995,000. CD 12/10/52.

▲† **Calif., Victorville**—APRON, etc.—U. S. Eng., 751 S. Figueroa St., Los Angeles, strengthen operational apron $756,000; extension primary taxiway, $302,000; firing-in butt, $32,000; extension primary runway $176,000; storage igloo, $28,000; storage magazine, segregated, $4,000; above ground bulk jet fuel storage $35,000, at George Air Force Base, Quinton Eng. Ltd., 816 W. 8 St., Los Angeles, Calif., consult. engrs. CD 4/5/51.

Utah, Salt Lake City—ADMINISTRATION BLDG.—Salt Lake City Corp., City-County Bldg., admin. bldg. at airport between 1st and 2nd runways. $500,000. CD 8/28/51.

▲† **Va., Norfolk**—ENGINE TEST SELLS—P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, plans by Clark, Buhr & Nexsen, archts. and consult.-engrs. Midtown Bldg., Wards Corner, Norfolk, turbo jet engine test cells, Naval Air Station, NOY 81606. $1,660,000. CD 8/12.

PUBLIC BUILDINGS

▲ **Calif., Chula Vista**—SCHOOL—Chula Vista Elementary School District, Chula Vista, voted $1,200,000 bonds for new school in County Club Area and school addns. CD 7/14/50.

Calif., Claremont—SCHOOL FACILITIES—Claremont Unified School Dist., Claremont, voted $900,000 bonds school facilities. CD 12/2/52.

▲ **Calif., Colton**—SCHOOL IMPRVS.—Colton Elementary School District, Colton, voted $1,100,000 bonds, school imprvs. CD 1/23/51.

▲ **Calif., Glendale**—COUNTY COURTS—Los Angeles Co. Hall of Records, Los Angeles, plans by Arthur Wolfe, 1415 Campbell St., and Breo Freeman, 45 S. Marengo St., Pasadena, county courts bldg. $1,250,000.

▲ **Calif., Inglewood**—SCHOOLS—Inglewood Unified School District, 111 N. Grevillea St., $3,886,480 bond election Mar. 26, school construction and repairs. CD 6/6/52.

▲ **Calif., National City**—SCHOOLS—Sweetwater Union School District, 2800 Highland Ave., voted $1,800,000 bonds, schools. CD 1/8.

▲ **Calif., Pinole**—SCHOOL—Pinole-Hercules Union Elementary School Dist., Pinole, bond election $69,000 and state aid acceptance $1,500,000 to be held Mar. 9, for new schools.

▲ **Calif., Sunnyvale**—SCHOOL—Fremont Union High School Dist., P.O. Box 215, plans by Masten & Hurd, 526 Powell St., San Francisco, high school, $1,000,000. CD 6/16.

▲ **Mich., Adrian**—BUILDINGS—State, A. N. Langius, dir. State Bldg. Dpt., Lansing, 9 brick, concrete buildings State Training School for Girls. $3,000,000.

▲ **Mich., Pontiac**—COUNTY—Oakland Co., H. Loyd Clawson, chn., 1 Lafayette St., $4,500,000 bond election Aug. 3, brick, steel, stone county bldg. 340 acre site, West Blvd. CD 1/5.

▲ **Mich., Utica**—SCHOOL—Bd. Educ., Utica Community School Dist., plans by Madison & Smith, 2908 N. Woodward St., Royal Oak, 2 story, brick steel, concrete, high school, $1,000,000. CD 8/4.

▲ **Mich., Ypsilanti**—SCHOOL—City, Willow Run School Dist., plans by Walter T. Anicka, 617 S. Forest St., Ann Arbor, 2 story, brick, steel, concrete high school, $1,000,000.

▲ **Mo., Springfield**—SCHOOLS—Bd. Educ., 940 N. Jefferson St., plans by Esterly & Amspacher, McDaniel Bldg., Reed Junior High School addn., $2,000,000; Pipkin Elementary School addn., $500,000; Jarrett Elementary School, $500,000. CD 10/13.

▲ **N. M., Santa Fe**—PENITENTIARY—State of New Mexico, Santa Fe, plans by W. C. Kruger & Assocs., 227 E. Palace Ave., state penitentiary, $4,000,000.

▲ **N. Y., Syracuse**—HOSPITAL—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, 200-bed hospital at Medical Center at Syracuse of State University of New York. $2,000,000. CD 3/28/45.

▲ **N. Y., Woodmere**—SCHOOLS—Bd. Educ., School Dist. 14, Woodmere, elementary school, Pearl and Longview Sts., $835,000; converting Junior High School into elementary school and converting Woodmere High School into Junior High School, $475,000.

▲ **O., Akron**—HIGH SCHOOL—Bd. Educ., 70 N. Broadway, plans by Kraus & Assocs., 247 E. Exchange St., South High School. $1,500,000. CD 7/27.

▲ **O., Cleveland**—LIGHT AND POWER IMPRVS.—City, Div. Light & Power, City Hall, Zone 14, transmision and sub-station facilities east and west of W. 41 St. Plant, $3,000,000; service and supply bldgs., W. 41 St. Plant, $325,000; auxiliary diesel generator, $250,000 steam generator, $3,000,000; storeroom and machine shop, $225,000; coal handling and ash disposal sys. $200,000, foregoing at Lake Road Generating Station. Vincent M. DeMelto, Comr. Div. Light & Power, City Hall, Zone 4, engr. CD 7/13/49.

▲ **Pa., Allison Park**—SCHOOL—Hampton Twp. School Dist., Allison Park, plans by Jos. Hoover, 333 Blvd.

of Allies, Pittsburgh, 1 story, bsmnt., brick, block, steel high school and addn. to elementary school, Hampton Twp. $1,000,000.

▲ Pa., Kittanning—SCHOOL—Kittanning Area Joint School Dist., Kittanning, plans by Walter Rittenhouse, Boarts Bldg., 1 story, brick, steel high school, Oer Ave. $2,500,000.

▲† Utah, Monticello—URANIUM MILL—Atomic Energy Comn., Grand Junction, Colo., uranium mill expansion proj. $1,000,000.

Va., Falls Church—SCHOOLS—City School Bd., City Hall, Falls Church, $800,000 bond election Mar. 3, George Mason High School addns. and elementary school. John Johnson, c/o owner, School Bd. Chn.

▲ Va., Hampton—HIGH SCHOOL—City School Bd., Hampton, Junior-Senior High School. $1,500,000. C. A. Lindsay, c/o owner, supt. Schools.

▲ Wis., Madison—MEMORIAL INSTITUTE—University of Wisconsin, Madison, plans by Brimeyer, Grellinger & Rose, 757 N. Broadway, Milwaukee, Zone 2, Service Memorial Institute addn., $1,000,000.

▲ Alta., Edmonton—HOSPITAL—Alberta Dpt. P. Wks., Parliament Bldgs., 210-bed hospital for post-poliomyelitis and arthritis cases on campus of University of Alberta, $1,500,000.

B. C., Vancouver—CITY JAIL—City, City Hall, plans by Tounley & Matheson, 1376 Hornby St., city Jail, 330 Main St. $810,000.

COMMERCIAL BUILDINGS

▲ Fla., Orlando—SHOPPING CENTER—Michael R. Sudokow, 350 Lincoln Rd., Miami Beach, shopping center. $3,500,000.

▲ Ill., Chicago—HOSPITAL—Wesley Memorial Hospital, 250 E. Superior St., Zone 1, 2nd 5 story hospital, $1,500,000.

▲ Ind., Indianapolis—BANK—Indiana National Bank, 3 Virginia Ave., plans by D. A. Bohlen & Sons, State Life Bldg., 12 story bank, 120 E. Market St. $2,000,000 or more.

▲ Md., Baltimore—MEDICAL CENTER—Associated Jewish Charities, Monument and Eutaw Sts., plans by Voorhees, Walker, Foley & Smith, engrs.-archts., 101 Park Ave., New York 17 N. Y., 5 story Jewish Medical Center, $16,000,000, James R. Edmunds Jr., 1025 St. Paul St., Baltimore, consultant to owner. CD 11/26.

Mass., Milton—SHOPPING CENTER—Owner, c/o Benjamin L. Cohen & Sons, 7 Water St., Boston, plans by Thomas A. Kirley, 125 Amity St., Amherst, 10 story, cinder block, stone, brick shopping center, South, Davis and East Sts. $800,000.

▲ Minn., Detroit Lakes—HOSPITAL—St. Mary's Hospital, Sister Bennet, OSB, supt., plans by Hills, Gibertson & Hayes, 6009 Wayzata Blvd., Minneapolis, 3 story, T-shaped hospital addn. $1,000,000.

▲ Mo., Kansas City—OFFICE—Skelly Oil Co., Skelly Bldg., Tulsa, Okla., plans by E. W. Tanner & Assoc., 310 Ward Parkway, Kansas City, Mo., office, 47 and Jefferson Sts. $1,000,000.

▲ O., Columbus—HOMES—Wilshire Homes, Inc., Cecil D. Rose, Jr., pres., Dublin, 100 ranch type frame homes, 41-acre tract, bounded by Racine and Roys Aves., Hilltop Sect. $1,250,000.

▲ O., Oberlin—DORMITORIES—Oberlin College, William Stevenson, pres., Oberlin, 4 dormitories. $1,160,000.

▲ Pa., Pittsburgh—SCHOOL OF MEDICINE, etc.—University of Pittsburgh, Forbes St., plans by Schmidt, Garden & Erikson, 104 S. Michigan St., Chicago, Ill., 4 to 10 story brick, stone School of Medicine, Nursing, Dentistry and Pharmacy, $15,000,000. CD 1/23/50.

▲ Tenn., Memphis—OFFICE, etc.—Jefferson Street Realty Co., c/o A. L. Aydelott & Assocs., 2030 Peabody St., office-apartment $1,500,000.

▲ Tex., Houston—SHOPPING CENTERS—Latimer Murfee & Assocs., 2nd Natl. Bank Bldg., plans by Fred Barnett, 9006 Stella Link Rd., Unit 2, masonry shopping center, $3,000,000; Unit 3, masonry shopping center, $3,750,000; Unit 4, masonry shopping center, $4,000,000 in 427-acre tract between main St. and Stella Link Rd. CD 5/7.

▲ Tex., Houston—SHOPPING CENTER—R. L. Philips, Almeda-Genoa Rd., shopping center, 7-acre tract in Briargrove. $1,000,000.

▲ Wash., Seattle—APARTMENT—L. E. Baldwin, Inc., 1103 N. 36 St., plans by E. W. Morrison & Assocs., 719-2 Ave. Bldg., Zone 4, 18 story, 120x128 ft. and 60x128 ft., rein.-con. apartment $2,000,000. CD 1/22.

▲ Ont., London—BUILDING—Covent Garden Building Ltd., 180 King St., 3 story, brick, steel building with stores, on ground floor and car parking above, $1,500,000. Survey and report to be prepared by Ramp Buildings Corp., 230 Park Ave., New York, N. Y., U. S. A. CD 10/28, under W. E. Mara, as owner.

INDUSTRIAL BUILDINGS

▲ Calif., Antioch—PLANT—Gould-National Batteries, Inc., 1728 Roblyn Ave., St. Paul, Minn., battery mfg. plant, Tregalles and Cavallao Rds., $1,000,000. J. W. Young, c/o owner, engr.

▲ Ill., Bedford Park—PLANT—Atlas Boxmakers, Inc., 5025 W. 65 St., corrugated shipping cases plant. $1,000,000.

▲ La., Sterlington—PLANT—Commercial Solvents Corp., 260 Madison Ave., New York 16, N. Y., plant to make nitroparaffin chemicals, $5,000,000.

▲ Mich., Montague—PLANT—E. I. du Pont de Nemours & Co., duPont Bldg., Wilmington, Del., neoprene synthetic rubber plant, $15,000,000.

▲ O., Warren—ROD MILL—Packard Electric Div. General Motors Corp., 8-126 General Motors Bldg., Detroit, Mich., 200,000 sq. ft. copper rod mill, 165-acre tract Larchmont St. exten., just north of here. $1,000,000. CD 5/29/51.

▲ Tex., Houston—WAREHOUSE—Sears, Roebuck & Co., 4207 Main St., plans by Cowell & Neuhaus, 2303 LeBranch St., 400,000 sq. ft. masonry warehouse, $2,000,000. CD 3/19/52.

▲ Utah, Provo—PLANT—U. S. Steel Corp., Provo, weld steel plant to produce pipe up to 36 in. diam.

▲ Wis., Blooming Grove (P.O. Madison)—OIL STORAGE TERMINAL, etc.—Cities Service Oil Co., 815 E. Main St., Madison, Mid-Continent Petroleum Corp., R 4, Madison, Pure Oil Co., 124 S. Dickinson St., Madison, Conoco Oil Co., 675 S. 76 St., Milwaukee, Wis., and Skelly Oil Co., 3639 S. Ashland St., Chicago, Ill. oil storage terminal and pipe line, Dane Co. Est. over $1,000,000.

▲ B.C., Vancouver—PLANT—Canadian Western Pipe Mills Ltd., Richmond, Vancouver, tubing and pipe plant, $3,000,000. Bohna & Miller Co., 1104 Hornby St., consult. engr.

UNCLASSIFIED

▲ Calif., Bakersfield—OFF STREET PARKING FACILITIES—City, City Hall, $1,000,000 bond election June 8, off-street parking facilities.

▲ Ill., Chicago—TELEVISION STUDIO—Columbia Broadcasting Co., 400 N. Michigan Ave., Chicago, Zone 11, conversion skating rink into television studio, Erie and McClure Sts. $1,500,000.

▲ La., Baton Rouge—RUNWAY and TAXIWAY—City and East Baton Rouge Parish, NW-SE runway and taxiway at Harding Field, $1,000,000. Brown & Butler, 1213 Nicholson Dr., consult. engrs. CD 12/28/44.

Mich., Flint—PARKING FACILITIES—City, Harry E. Cull, clk., 2-level concrete ramp parking structure, 285-car surface-level parking, Palace Theater location, Beach and Kearsley Sts., $950,000, DeLeuw Cather & Co., 150 N Wacker St., Chicago, Ill., consult. engrs.

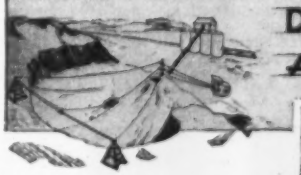
Mich., Wyandotte—SWIMMING POOL—City plans by Robert L. Svoboda, 13332 Promenade St., Detroit, 45x75 ft. indoor and outdoor swimming pool, $500,000. CD 12/12/52.

Tenn., Paris—GAS DISTRIBUTION SYSTEM—City bond election Mar. 2, natural gas distr. sys. $750,000. CD 2/12.

ONE MAN CONTROL

DIGGING • HAULING

AUTOMATIC DUMPING



You can cut handling costs by using a

SAUERMAN SCRAPER

Here's How—Sauerman Scrapers move sand and gravel, ore, crushed stone, coal and other bulk material rapidly . . . . Normal operating speeds using a Sauerman Hoist are 250 fpm. on the inhaul with loaded bucket and 500 fpm. on the outhaul with empty bucket.

Its versatile working range enables you to work a small area or reach out 1,000 feet or more. Sauerman Scrapers travel across a river or wide stockpile, or up to the top of a hill or down into a deep pit.

Initial investment is moderate and maintenance costs are low, since only the most expendable parts of the Sauerman Scraper contact the material with which it is working. The bottomless scraper bucket is designed for maximum strength with minimum weight. The result is economy in power consumption, gasoline, diesel or electric.

Add to these advantages, the labor costs of just one man—situated in a safe location overlooking the work site—controlling the entire job operation . . . and you obtain an efficient, economical installation. Sauerman Scrapers range in size from 1/3 to 15 cubic yards. Write for Catalog A: Power Drag Scrapers or Catalog E: Bulk Storage By Power Scraper.

SAUERMAN BROS., INC. 532 S. Clinton St. Chicago 7, Ill.

SAUERMAN BROS., Inc.

Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
February 16, 23 Massachusetts
STREETS AND ROADS
February 16 Massachusetts

BUILDINGS

LOW BIDS AND CONTRACTS

▲ Woodbridge Lake Estates, c/o Stanley J. Shaftel, 89-47 163 St., Jamaica, N. Y. Owner Builds. $3,509,000, 153 HOUSES on tract at Woodbridge Dr. and Ridge Park Ave., STAMFORD, CONN.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
February 23 Maryland, New Jersey
STREETS AND ROADS
February 23 New Jersey February 25 New York
March 5 Pennsylvania

BIDS ASKED—BUILDINGS

▲ N. J., Woodbridge—SCHOOL—B.A. 3/23—Bd. Educ., Woodbridge, high school, St. George Ave. $3,000,000.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ W. V. Pangborne Co., 1927 Montgomery Ave., Phila., Pa., LB $1,872,890, Subway Station (high speed line) tunnel lighting and power cable systems, running rail, trolley wire sys., contact rail, PHILA., PA. Dpt. Procurement, City Hall Annex, Phila. Pa. CD 11/9/44.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ Beau Bric Lawns Homes, c/o John W. Burton Assoc., 163-18 Jamaica Ave., Jamaica, N. Y. Owner Builds. $1,500,000. 100 HOUSES, tract at Jerusalem Ave. and Maglie Dr., HICKSVILLE, N. Y.

▲ Skyway Constr. Co., 1501 Broadway, New York 18, N. Y. Separate Contracts. $3,000,000. 6 story GARAGE, 30 and 31 Sts. between 7 and 8 Aves. to be operated by Hotel Garage Co., Inc., NEW YORK, N. Y. Lama, Proskauer & Prober, 395 Pearl St., Brooklyn 1, N. Y., archts.

▲ J. Rich Steers Co., 17 Battery Pl., New York 4, N. Y. LB $2,036,000, general constr. MARINE TRANSFER STATION, W. 135 St., Manhattan Boro, NEW YORK, N. Y. Dpt. P. Wks., Municipal Bldg., New York 7, N. Y. Bids Feb. 3. CD 1/5.

▲ Sherwood Gardens Homes, c/o Matern & York, archts., 90-04 161 St., Jamaica, N. Y. Owner Builds. $2,000,000. Second Sect. 100 HOUSES, 21-acre tract, Jericho Turnpike and Powells Lane, WESTBURY, N. Y.

▲ Warwick Builders, Inc., Att. Arthur Steinberg, Stratford, N. J. Separate Contracts, $3,500,000. RESIDENTIAL DEVELOPMENT, Warwick Rd., SOMERDALE, N. J. Frank W. Hall, 503 W. 4 Ave., Haddon Heights, N. J., archt.

▲ Fleming Co., 1717 Sansom St., Phila., Pa., CA $10,000,000. SHOPPING CENTER, CLIFTON HEIGHTS, PA. Oak Park Shopping Center, c/o Morris A. Kravitz, Inc., 225 S. 15 St., Phila., Pa. Victor Gruen Assocs., 232 W. Grand River Ave., Detroit, Mich., archts.

▲ Mariani Constr. Co., 6922 Roosevelt Blvd., Phila., Pa. Separate Contracts. $3,000,000. 200 duplex RESIDENCES, 10th St. and Columbia Ave., PHILA., PA.

▲† Malan Constr. Corp., 25-09 42nd St., Long Island City, N. Y., LB $3,710,000. NAVAL BOILER AND TURBINE LABORATORY Bldg. No. 633 addn. and Bldg. No. 520 alterations, Naval Base, NOY 74547, Spec. 35504. PHILA., PA. Dpt. Navy, Phila. Naval Base, Phila., Pa. Bids Jan. 22. CD 1/12.

▲ Disston Homes, Inc., 1901 Devereaux St., Phila., Pa. Separate Contracts. $3,000,000. RESIDENTIAL DEVELOPMENT, Oxford St., etc.; $600,000, 60 RESIDENCES, Princeton Ave.; $308,000, RESIDENTIAL DEVELOPMENT, Princeton Ave., etc., PHILA., PA. Grand total $1,908,000. Christian H. Fries, 3701 N. Broad St., Phila., Pa., archt.

▲ Arthur E. Bleakley, 244 Hampden Rd., Upper Darby, Pa. Separate Contracts. $3,000,000. RESIDENTIAL DEVELOPMENT, Overhill Rd., etc., SPRINGFIELD, PA.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
February 25 Florida
STREETS AND ROADS
February 25 Florida

BUILDINGS

LOW BIDS AND CONTRACTS

▲ Charles Assocs., Inc., 2018 Mt. Vernon Ave., Alexandria, Va. Owner Builds. $2,000,000. 130 HOMES, 44-acre tract, known as Vell Haven Terrace, SOUTH ALEXANDRIA, VA.

▲ States Constr. Co., 3000 Warwick Ave., Newport News, Va. Owner Builds. Approx. $1,500,000. 150 one story frame RESIDENCES, WARWICK, VA. CD 12/18.

▲ McGraw Constr. Co., Inc., 2 N. Main St., Middletown, O., CA, $6,420,000 concrete, steel, masonry, steel sintering PLANT, WEIRTON, W. VA. Weirton Steel Co., 1935 Stillwell St., Weirton, W. Va.

▲† G. E. Bass & Co., P.O. Box 1033, Jackson, Miss. CA $1,534,033. two 200x1,000 ft. concrete WAREHOUSES, U. S. Naval Construction Battalion Center, GULFPORT, MISS. Dpt. Navy, Dist. P. Wks. Office, Charleston, S. C. CD 12/15, under LB.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
February 17 Michigan
STREETS AND ROADS
February 17 Michigan February 23 Ohio

▲ Ill., Chicago—SUBWAY—B.A. 2/16—City, City Hall, West Side Subway, $3,235,350. Bids 11/5 rejected. CD 11/10, under LB.

BIDS ASKED—BUILDINGS

▲ Ill., Chicago—WAREHOUSE, etc.—B.A. 2/16—Westinghouse Electric Co., 401 Liberty St., Pittsburgh, Pa., 2 story, 300x314 ft., warehouse, office, paving and railroad trackage, $2,500,000. Bruce A. Gordon, 1 N. La Salle St., Chicago, Zone 2, engr. CD 1/15.

▲ Mich., Dearborn—SCHOOL—B.A. 3/10—City, Bd. Educ., 5757 Neckel St., 2 story, bsmnt., brick, steel, concrete Edsel Ford Senior High School, $4,500,000. Plans deposit $75 refundable, Extended date. Eberle M. Smith Assoc., Inc., 153 E. Elizabeth St., Detroit, archt. CD 1/29.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ OHIO—State Hy. Dpt., Ohio Dpts. Bldg., Columbus, Zone 15.

W. L. Harper Co., 2910 E. Highland Ave., Cincinnati, O. CA $971,869, est. $1,003,600, wid'n. with c. conc. pavement and with c. conc. base and b. conc. surf., constr. Bridge No. PI-23-136 over Crooked Creek; Bridge No. PI-23-164 over Moore's Run, 3.299 mi. USR 23, Village of Waverly, Pike Co.;

Charleston Constr. Co., 1529½ Washington St., Charleston, W. Va., CA $1,132,762, est. $1,123,600, grading, wid'n., or paving with c. conc. and b. conc. on c. concrete surf., constr. Bridge No. RO-23-04 over Crooked Creek; Bridge No. RO-23-11 over Crooked Creek, 4.469 mi. U. S. R. 23-16.40. Pike and Ross Counties;

W. M. Brode Co., 100 Elizabeth St., Newcomerstown, O. CA $894,545, est. $964,800, Part 1, b. conc. on bit. macad., paving Bridge No. PI-124-108 over Scioto River, 0.816 mi., Part 2, b. conc. on bit. macad. paving and constr. Bridge No. PI-124-210 over Scioto River Overflow; Bridge No. PI-124-214 over Scioto River Overflow, 1.204 mi. S. R. 1 124, S. R. 104, Pike Co.;

Middle States Bituminous Corp., 15 and Front Sts., Ashland, Ky., CA $696,677, est. $856,000. b. conc. paving, constr. Bridge No. PI-124-289 over Four Mile Creek; Bridge No. PI-124-319 over Buck Hollow, 6.852 mi. S.R. 124, Pike Co.;

V. N. Holderman & Sons, Inc., 890 Oakland Park Ave., Columbus, O., CA $1,791,929, est. $2,214,000, c. conc. paving, constr. Bridge No. RO-23-49 over Branch of Indian Creek; Bridge No. RO-23-67 over North Branch of Indian Creek, 5.277 mi. U. S. R. 23, Ross Co. Grand total $5,487,782. Bids Jan. 22. CD 1/28, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ Selby Constr. Co., 13542 Detroit Ave., Cleveland 7, O. Owner Builds. $1,000,000. 60 frame, DWELLINGS, Walbrook Ave., CLEVELAND, O.

▲ Ragnar Benson, Inc., 4744 W. Rice St., Chicago 51, Ill., CA, $2,000,000, Morton Medical RESEARCH Bldg., Superior St. at Fairbanks Court, CHICAGO, ILL. Northwestern University, 619 Clark St., Evanston, Ill. Awarded Jan. 27. CD 1/19.

▲ Sorenson-Gross Constr. Co., Flint, Mich. LB $3,700,000. general contract brick, steel, concrete HIGH SCHOOL, ANN ARBOR, MICH. City, Bd. Educ., Ann Arbor, Mich. Bids Jan. 13. CD 12/10.

▲ Darin & Armstrong, Inc., 2041 Fenkel St., Detroit, Mich. CA Est. $6,500,000. 600,000 sq. ft. ENGINEERING CENTER incl. test laboratory, engineering facilities, admin., Mound and 12 Mile Rd., Center Line, DETROIT, MICH. Chevrolet Div., General Motors Corp., General Motors Bldg., Detroit, Mich. Bids Jan. 5. CD 12/28.

▲ Claireview Corp., Clune J. Walsh, 3070 Penobscot Bldg., Detroit, Mich. Owner Builds. $1,750,000. 45 HOUSES, Lake Shore Dr., GROSSE POINTE SHORES, MICH.

▲ Maxon Brothers, Inc., 83 Kercheval St., Gross Pointe, Mich. Owner Builds. $1,500,000. Palatial HOMES, on 72 sites, Lake Shore Sect., GROSSE POINTE SHORES, MICH.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
February 18, 19 Kansas February 18 Missouri
February 19 South Dakota
STREETS AND ROADS
February 18, 19 Kansas February 18 Missouri
February 19 South Dakota

▲† Tex., Mineral Wells—HOSPITAL, etc.—B.A. 3/11—U. S. Eng., 100 W. Vickery St., Fort Worth, 3 story, 90,000 sq. ft. rein.-con. grade beam and pier fdn. masonry hospital and boiler plant, Inv. No. Eng-41-443-54-30. $1,000,000-$2,250,000. CD 1/19.

BIDS ASKED—BUILDINGS

▲ Tex., San Antonio—HOSPITAL—B.A. 3/4—Bd. for Texas State Hospitals & Special Schools, 45 and Lamar Sts., Austin, 600-bed tuberculosis hospital, known as South Texas Tuberculosis Hospital. $2,750,000. Phelps & DeWees & Simmons, 1501-6 Majestic Bldg., archts. Walter C. Moore, c/o owner, superv. archt. CD 11/19/52.

▲ Tex., Brownsville—REFINERY—Bids Asked—McBride Oil & Gas Corp., Majestic Bldg., San Antonio, refinery expansion. $2,250,000. CD 12/18.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† Robert E. McKee, General Contractor, Inc., P.O. Box 562, El Paso, Tex., CA $1,930,105, seven 3-story 25,250 sq. ft. dormitories; two 1-story 16,970 sq. ft. masonry mess and admin. bldgs., Abilene Air Force Base, Inv. No. Eng-41-443-54-11, ABILENE, TEX. U. S. Eng., 100 W. Vickery St., Fort Worth, Tex. Bids Jan. 14. CD 1/20, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ Fegles Constr. Co. Ltd., 711 Wesley Temple Bldg., Minneapolis, Minn., CA, $3,000,000. GRAIN ELEVATOR, DES MOINES, IA. Farmers Grain Dealers Assn., 1101 Walnut St., Des Moines, Ia. Bids Jan 25. CD 1/21.

▲ Milford Vandiver, 5104 E. 21 St., Tulsa, Okla. Purchase and Hire. $2,000,000. 200 HOUSES in Sheridan Hills, TULSA, OKLA. Price Bros., 1306 N. E. 21 St., Tulsa, Okla., archt.

▲ O. L. Olsen Co., Niels Esperson Bldg., Houston, Tex. CA Approx. $2,000,000, petrochemical PLANT, near CONROE, TEX. Warren Petroleum Corp., City Natl. Bank Bldg., Houston, Tex. CD 1/6.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
February 24 California
STREETS AND ROADS
February 24, 25 California February 25 Washington

BIDS ASKED—BUILDINGS

▲ Nev., Las Vegas—HIGH SCHOOL—B.A. 3/17—Las Vegas High School Dist., 315 S. 7 St., 1 story, 125,000 sq. ft. concrete block high school. $2,000,000. Plans deposit $100. Beelman, Langdon, Wilson, 7421 Beverly Blvd., Los Angeles, Calif., archts. Brandow & Johnston, 501 S. Boylston St., Los Angeles, Calif., engrs.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ L. E. Baldwin, Inc., 1102 N. 36 St., Seattle, Wash., Day Labor, $1,746,900, 18 story, 120x128 ft. and 60x128 ft., rein.-con. APARTMENT, 9 Ave. and University St., SEATTLE, WASH. E. W. Morrison & Assocs., 719 2nd Ave. Bldg., Seattle 4, archts. CD 1/27.

▲ Guthrie Constr. Co., N. 2928 Nevada St., Spokane, Wash., Day Labor, $4,000,000, 400 HOUSES, SPOKANE, WASH. D. T. Howell, Peyton Bldg., Spokane, archt. CD 4/30/52.

CANADA

BUILDINGS

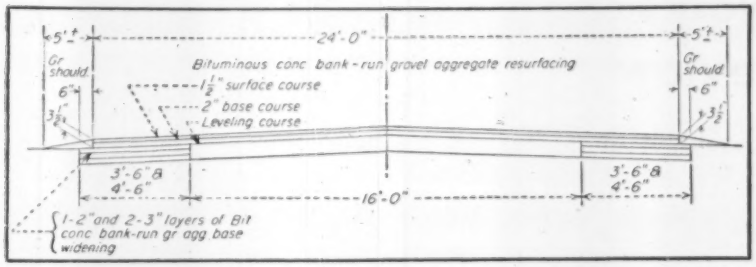
LOW BIDS AND CONTRACTS

▲ George Hardy Ltd., 163 Wicksteed Ave., Leaside, Ont., CA, $5,230,760, National Film Board Building, Ville St. Laurent, MONTREAL, QUE. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Bids Dec. 16, awarded Jan. 29. CD 12/23, under LB.

▲ Harold R. Lenhardt, 30 Eglinton Ave. W., Toronto, Ont., Owner Builds. $1,500,000, 140 HOUSES on western part of Millard Ave. and Yonge St., NEWMARKET, ONT.

(Proposal Advertisements see pp. 60 to 62)

UNIT PRICES



ROADWAY CROSS SECTION used on 91% of a 4.558 mile base widening job.

Bituminous-concrete base widening job, Maryland

A wide spread between the low and second-low bid in comparison with the tight bunching of the four top bids characterized bidding on a $159,444 base widening contract awarded by the Maryland State Roads Commission to Dickerson, Inc., Monroe, North Carolina. The Dickerson bid was the lowest of five and fell below the second-low bid by almost 20% while an average of only 4% separated each of the four high bids.

The contract calls for an 8-in. base widening on 4.558 miles of highway in Caroline county, Maryland. A 2-in. course of bituminous concrete and bank-run gravel will be used for the base and a 1½-in. course of the same material will be applied to the surface. Ralph Townsend is the district engineer on the project.

Skilled labor will receive a minimum of $1.15 per hr; semi-skilled labor, $0.90 per hr; and unskilled labor, $0.75 per hr. Bidders include:

1C	Dickerson, Inc., Monroe, North Carolina	$159,444
2	Patapsco Engr. Co., Inc., Baltimore, Md	195,663
5	T.B.Gatch & Sons, Inc., Baltimore, Maryland	220,963

Bids: 1-5-54 Item	Unit	Quantity	Unit Prices 1 C	2
Class 1 excavation	cy	5,300	$1.00	$1.60
Borrow excavation	cy	400	1.00	1.50
Gravel surf for entrance, etc	cy	175	1.30	3.00
Sand asphalt joints	lf	9,550	0.15	0.25
Gravel shoulders	cy	1,650	1.30	2.00
Bit mat for tack coat	gal	4,300	0.20	0.30
Bit conc bank-run grav aggr				
1½" surface course	t	5,500	6.04	6.90
2" base course	t	7,200	5.66	6.90
wedge course	t	1,650	5.66	6.90
leveling course	t	100	10.00	6.90
base widening, 8"	t	10,500	5.90	6.90
Rem existing guard rail	lf	3,450	0.15	0.50
Maintain traffic	ls	1	1,500	4,000
Patch conc pvmnt, 9", using cl H.E.S. conc	sy	80	10.00	15.00

Combination-bid discount tips scales on Kansas bridge

A Missouri contractor was awarded a $1,248,725, two-part, bridge and approach contract although his bid on the approach section was third lowest of eight. Kansas City Bridge Co., Kansas City, Mo., got the job by allowing a 4% discount on the total bid price in exchange for being awarded both sections of the two-part contract. Although eleven contractors bid on the job, Kansas City was the only one to bid on both parts. The city of Leavenworth made the award.

The first section of the contract includes steel erection and a concrete deck for two, 420-ft, continuous tied arch river spans. The second section calls for steel erection, steel bearing piling, concrete bents, and a concrete deck for the east approach to the bridge. A crawler crane will be used for pile driving and bent construction.

Wage rates include $2.675 to $2.805 per hr for skilled labor; and $2.005 per hr for common labor.

The job will start February 15, 1954 and will be completed by June 15, 1955. Howard, Needles, Tammen & Bergendoff, Kansas City, Missouri, are the engineers.

Bidders include:

River span superstructure

1C	Kansas City Bridge Co., Kansas City, Mo.	$935,763
2	John F. Beasley Const. Co., Chicago, Ill.	947,361*
4	Bethlehem Steel Corp. St. Louis, Mo.	1,328,828
EE	Howard, Needles, Tammen & Bergendoff, Kansas City, Mo.	934,484

Bids: 12-15-53 Item	Unit	Quantity	Unit Prices 1 C	2
Carbon steel	lb	1,710,000	$0.26	$0.25
Concrete in deck	cy	485	72.65	70.00
Reinforcing steel	lb	100,000	0.13	0.13
Aluminum handrail	lf	1,692	9.00	8.00
Silicon steel	lb	1,750,000		0.2625
Low-alloy steel (alternate)	lb	1,645,000	0.26	

* Using silicon steel alternate

East approach viaduct

1	Universal Bridge Co., Kansas City, Kan.	$381,019
3C	Kansas City Bridge Co., Kansas City, Mo.	384,992
8	W. A. Lynn Const. Co., Lincoln, Nebraska	419,790
EE	Howard, Needles, Tammen & Bergendoff, Kansas City, Missouri	350,006

Bids: 12-15-53 Item	Unit	Quantity	Unit Prices 1	3 C
Furn & drive stl piles	lf	8,100	$6.50	$5.00
Conc in bents & abutments	cy	920	70.00	84.00
Reinforcing steel	lb	260,000	0.14	0.13
Carbon steel	lb	795,000	0.1865	0.228
Conc in deck	cy	640	72.00	75.00
Aluminum handrail	lf	1,469	9.00	8.00

construction
STEEL

Our stocks of Certified Quality Steel are large and becoming more complete. Quick, dependable service is assured.

REINFORCING BARS and accessories
STRUCTURALS—channels, angles, beams, etc.
PLATES—sheared and U M., Inland 4-Way Floor Plate
SHEETS—many types & coatings
TUBING—incl. welded structural
EXPANDED METAL—std. & flattened
STEEL SPIRALS, CAISSON RINGS, ETC.

RYERSON

Joseph T. Ryerson & Son, Inc.
Plants at: New York, Boston, Philadelphia, Charlotte, N. C., Detroit, Cincinnati, Cleveland, Pittsburgh, Buffalo, Chicago, Milwaukee, St. Louis, Los Angeles, San Francisco, Seattle, Spokane

PHOENIX BRIDGE COMPANY
Engineers—Fabricators
Erectors
Structural Steel
BRIDGES and BUILDINGS
General Office
and Shops
PHOENIXVILLE, PA.
Subsidiary—Barium Steel Corporation

QUALITY INSTRUMENTS
FINEST JAPANESE OPTICS
Guaranteed Accuracy
Standard American Specifications

Engineer's Transit—26X
5¾" Horizontal circle
Coated Lenses
$375.00
complete with collapsible tripod and carrying case

Write for Descriptive Literature
Inquire about other Engineering Instruments
UNION MERCANTILE CO.
465 California Street San Francisco, Calif.

Plenty of public works: a bond market preview

About $2.5-billion worth of new revenue bond financing for state and local public works already is scheduled to be offered to the bond market in 1954, according to a preview just published by the Wall Street firm of Tucker, Anthony & Co. In addition to 24 projects tentatively scheduled for 1954, the preview lists 25 other projects that may be coming up in future. Estimates on dollar volume for 13 of these projects are available. They total about $2.1 billion.

The 1954 schedule, of course, is subject to change. Some projects could be postponed or even abandoned, and others brought forward that are not now scheduled for this year. Furthermore, the dollar totals for financing include allowances to pay interest on the bonds until the turnpike, bridge, or other facility is in operation and producing revenue. In some cases, this allowance can be sizable.

• **Schedule**—Here's a rundown on projects which may be coming up this year:
• Current projects:

$30 million for Florida Board of Education bonds, to finance a continuing $100-million program.

$40 million for the Jones Beach, N. Y., Authority's parkway.

$38 million for the West Virginia Turnpike Authority.

$119 million of new housing authority bonds.

• Scheduled to come along before midyear:

$100 million for Pennsylvania Turnpike extension.

$62 million for Florida Turnpike Authority.

$200 million for Massachusetts Turnpike Authority.

$60 million for Connecticut Turnpike Authority.

$125-million installment for New York State Thruway.

$50 million of new housing authority bonds.

$125 million of Ohio bonds for highway improvement.

• Scheduled to be sold this summer:

$81 million for the Virginia Tunnel.

$100 million for the Texas Highway Authority.

$70 million for the Baltimore Tunnel and Patapsco crossing.

$235 million for the California Toll Bridge Authority.

$52 million for California's San Joaquin Dam.

Another $125-million installment for the New York State Thruway.

$38 million for the Jersey City, N. J., sewer authority.

$85 million Alleghany Co., Pa., sewer authority.

$25 million for the New Jersey Turnpike.

$315 million for the New York State Power Authority.

$215 million for the Michigan Turnpike Authority.

Tight-rope artist

How to manage the debt without hurting building

The Republican Administration is moving cautiously in its attempts to handle the public debt in a conservative manner without upsetting the long-term money market in which corporations, local governments, and would-be home-owners borrow funds for construction. This week, it managed a huge refunding operation without tightening the long-term money rates.

The problem is this: This year about $73 billion of marketable government securities, more than a quarter of the total debt, come due for payment. Since the Treasury cannot reduce the debt, all of this must be "refunded" by offering new securities in exchange.

If the Treasury offered short-term securities in exchange for this $73 billion, which was the usual practice under postwar Democratic administrations, soon it would be faced again with the problem of refunding them. Secretary of the Treasury George Humphrey wants to stop going into the market so often. He wants to offer in exchange new securities which will not mature for several years to come.

However, if Humphrey offered a substantial amount of long-term bonds (maturing, say, in 15 years or more) he would be in competition with other borrowers of long-term money. That would tend to drive up interest rates, and make it more expensive to finance construction.

Humphrey has this very much in mind. When he sold a small issue of 30-year bonds last spring, it proved to be a major factor in tightening rates sharply.

The effect on the mortgage market was particularly noticeable.

• **Choice**—That's why, last week, the Treasury offered holders of $12.8 billion worth of maturing short-term securities their choice of new securities. They could take cash, of course, or they could choose between a one-year "certificate" paying 1⅛% interest, or a seven-and-three-quarter-year bond paying 2½%. The Treasury also offered this bond to holders of $8 billion in bonds which mature soon.

By doing this, Humphrey is trying to get some holders of short-term securities to take bonds, thus "lengthen out" the public debt. But the bonds he offered will come due in less than nine years. They are not "long" enough to compete with the long-term borrowers of construction money.

Later this spring, Humphrey may borrow in the long-term market. But he is moving so cautiously that Wall Street observers think he may be able to borrow without tightening rates for construction money. In this program, he is getting indispensable help from the Federal Reserve Board, which is throwing its weight on the side of easy money conditions.

General Motors gives details on $1-billion spending plan

When President Harlow Curtice of General Motors Corp. announced that GM would spend at least $1 billion for fixed assets in 1954 and 1955, he didn't give out any details (ENR Jan. 28, p. 100). By this week, however, a good part of the program had been announced.

Some of it included building plans which had been announced months before. Contracts for many of the buildings already have been awarded. Here is the latest run-down:

Fisher Body—This division will add more than 1 million sq ft of factory space. It now has about 20 million sq ft. There will be expansions to stamping plants and assembly plants at: Cleveland; Janesville, Wis.; Kansas City; Flint, Mich.; Pontiac, Mich.; Hamilton, Ohio; and Grand Rapids, Mich.

Cadillac—This division will boost normal production capacity by 40%. There will be additions and changes at the Clark Ave. plant in Detroit, as well as several other Detroit plants:

Scotten Ave., Riopelle Ave., and Wesson Ave.

GM Truck & Coach—There will be an extension to the truck assembly and paint plant at Pontiac, plus overall plant improvement and expansion.

Buick—Big expansions are planned for the Flint factories.

Pontiac—About 1,300,000 sq ft will be added to its plant area.

Chevrolet—About 5,000,000 sq ft of new plants and expansions programmed, part of which are finished already. This includes work in Detroit; Flint; Cleveland; Indianapolis; Kansas City; Janesville, Mis.; Atlanta, Houston; Dallas; Portland, Ore.; Oklahoma City; Boston; Oakland, Calif.; Tonawanda, N. Y.; and Livonia, Mich.

FNMA climbs out

Better mortgage market helps Fanny Mae's mortgage sales

The gradual improvement in the mortgage market is helping the Federal National Mortgage Assn. out of the hole it got into when mortgage rates tightened last spring. At that time, Fanny Mae had about $2.5 billion par value of mortgages it had taken on when rates were lower. As interest rates rose, the market value of Fanny Mae's portfolio declined. In some areas last summer, mortgage brokers were offering 4% VA paper at 91% of par.

By that time Fanny Mae already had stopped taking on more mortgages. Late in July it resumed making advance commitments, but on a "one-for-one" basis. In other words, mortgage bankers who wanted advance commitments from Fanny Mae to buy their mortgages bought an equivalent amount of mortgages from its portfolio, at slightly reduced prices. Any loss they took on reselling this paper was part of the cost of getting a commitment.

Up till now Fanny Mae has been selling 4% VA mortgages at 96% of par, and 4½% FHA paper at 97¼%. Sales were slow at first, but as the mortgage market improved, they picked up substantially. From the time the one-for-one program started until the end of the year, FNMA sold $184.5 million of mortgages, of which $59 million were taken in December alone.

Now Fanny Mae is boosting its prices to keep in line with the better improvement in the market. VA 4% paper will now sell for 98% of par, instead of 96%. And FHA 4½% mortgages will sell for 99¼%, instead of 97¼%.

MC&S has record profits; backlog climbs during 1953

Fast-growing Merritt-Chapman & Scott Corp. is one of the few contracting companies whose stock is traded publicly. That's why construction men each year can get a look at MC&S's annual report.

That annual report isn't out yet, but some key facts were announced this week by Louis E. Wolfson, president and chairman of the board. MC&S, he said, earned a profit of more than $3.5 million in 1953, compared with about $1.5 million last year. This is the biggest profit in company history.

To make this profit, MC&S took in $105 million in gross revenue, up about 29% from 1952 and the biggest volume for any peacetime year. Furthermore, the firm had a bigger backlog at the end of 1953 than it had at the beginning—$108 million as compared with $103 million.

The $105-million revenue in 1953 includes $34 million in costs reimbursed under cost-plus-fixed-fee contracts. In 1952, such costs were $35 million out of total gross revenue of $81 million.

Business briefs

• **U. S. schools** have an immediate need for $10.6 billion in construction, and will need another 370,000 rooms costing about $11 billion by 1960. That's the estimate of the U. S. Office of Education, which figures that state and local governments can't raise more than $6 billion now for immediate needs.

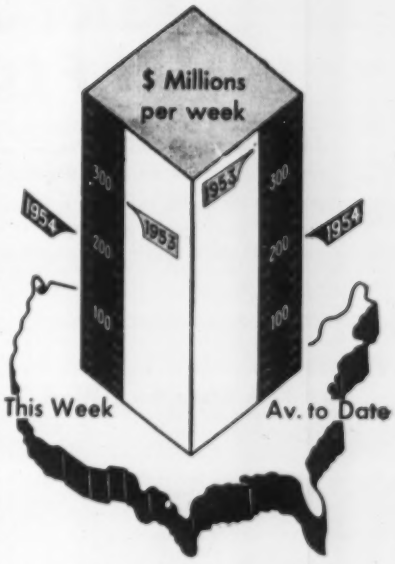
• **Standard Oil Co. of California** announces it will spend $275 million for expansion and exploration this year, $50 million more than in 1953.

• **Gross-Morton,** Long Island, N. Y., building firm, has broken up. The Gross interests have formed another company, Gross Brothers Corp., to engage in apartment construction.

• **Peter Kiewit Sons' Co.,** prime construction contractor at the Portsmouth, Ohio, atomic plant, has awarded 331 materials and construction subcontracts for $145 million.

Activity This Week

(In millions of dollars)
As reported to ENR



Amount of contracts let

	This Week	Cumulative 6 wks 1954	1953	% chge
Federal	$16.6	$113.0	$249.9	−55
State and municipal	48.2	446.2	577.5	−23
Total pub.	64.8	559.2	827.4	−32
Total priv.	132.0	598.3	1,347.6	−56
U. S. total.	$196.8	$1,157.5	$2,175.0	−47

Contracts by type of work

Waterworks	$5.6	$23.1	$21.7	+6
Sewerage	1.7	27.1	53.8	−50
Bridges	6.5	39.9	62.1	−36
Highways	14.8	145.1	159.1	−9
Earthwork, waterways	2.7	33.1	56.0	−41
Buildings:				
Public, excl. hsg.	20.9	175.0	234.7	−25
Housg., pub.	4.8	28.2	115.1	−75
Housg., priv.	65.3	298.0	570.9	−48
Commercial	28.7	114.4	105.1	+9
Industrial	34.4	162.8	610.8	−73
Unclassified	11.4	110.8	185.7	−40
Total	$196.8	$1,157.5	$2,175.0	−47

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

New capital for construction

(millions of dollars)	Week of Feb. 4 1954	Cumulative 5 Wks 1954	1953-54 % chge
Corporate securities	$66.3	$319.6	−13
State and municipal:			
Excluding housing	49.7	234.0	−2
Housing	0.4	10.6	−89
Federal loans	1.7	15.0	−9
Federal aid	...	...	...
Total non-federal	$118.1	$579.3	−20
Federal approp.:			
In U. S.	...	...	...
Outside U. S.	...	...	...
Total new capital	$118.1	$579.3	−20

ENR indexes		Base years = 100 1913	1926	1949
Constr. cost	Feb '54	614.71	295.49	128.86
	Jan '54	614.04	295.17	128.72
Bldg. cost	Feb '54	437.55	236.53	124.38
	Jan '54	436.88	236.16	124.19
Volume	Jan '53	338	137	98
	Dec '53	547	222	158

OFFICIAL PROPOSALS

RATE: The rate for Official Proposal advertising is $1.50 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.

CLOSING DATE: Friday 10:30 A.M. for issue dated the following Thursday.

SEND COPY TO: Official Proposal Division, Engineering News-Record 330 West 42nd Street New York 36, N. Y.

Bids: February 25, 1954

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,— Pursuant to the provisions of the Highway Law, Canal Law, and Federal Aid funds, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time on the 25th day of February 1954, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT No. 1				
		G. L. Nickerson, District Engineer 353 Broadway, Albany, N. Y.				
Saratoga	FARC 54-30	Gansevoort-South Glens Falls S.H. 1460, Project S-402(1)	0.71	Asp. Conc. Opt.=0.67 Mi. Misc. Work=0.04 Mi.	$13,000 Plans $10	$235,000
		DISTRICT No. 2				
		L. Ketchum, District Engineer, 109 No. Genesee Street, Utica, N. Y.				
Oneida	FASS 54-3	Oriskany Falls-Lairdsville, Pt. 3 (Co. Rd.) Proj. S-229(3)	1.14	Bit. Mac. Opt. (Rd. Mix)	$3,500 Plans $10	64,000
		DISTRICT No. 4				
		E. G. Youngmann, District Engineer, Barge Canal Terminal, Rochester, N. Y.				
Monroe	FASS 54-4	Dewey Avenue (Co. Rd.) Project S-433(1)	1.76	Asp. Conc. Opt.=1.57 Mi. Misc. Work=0.19 Mi.	$18,000 Plans $15	327,000
Monroe	M-54-1	Concrete Apron at Gates 1 and 2 Barge Canal	0.14	New Concrete Apron, Protection for Conc. & Venturi Outlets	4,100 Plans $10	72,905
		DISTRICT No 6				
		J. H. Thomas, District Engineer, State Office Bldg., Hornell, N. Y.				
Chemung	FAC 54-2	Elmira City: Madison Ave., Lake St. Proj. U-479(8) Cont. 2	0.66	Traffic Signal System	$2,000 Plans $10	36,000
		DISTRICT No. 7				
		R. W. Sweet, District Engineer, 444 Van Duzee St., Watertown, N. Y.				
Franklin	FARC 54-32	St. Regis Indian Reservation-Fort Covington, S.H. 1659 Proj. F-580(8)	0.22	Asp. Conc. Opt. R.C. Closed Box 36'	$5,000 Plans $10	97,000
		DISTRICT No. 8				
		J. S. Bisby, District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.				
Dutchess	FASS 54-1	Sharon Turnpike, Co. Rd. 106 Project S-379(1)	3.08	Asp. Conc. Opt. R. C. Twin Box Br. 34'	$20,000 Plans $15	373,000
		DISTRICT No. 9				
		F. W. Donovan, District Engineer, 71 Frederick St., Binghamton, N. Y				
Schoharie	FARC 54-33	Schoharie Middleburg, S.H. 5444. Gallupville-Vrooman, S.H. 5086 Proj. F-553(4)	0.88	Asp. Conc. Opt=0.80 Mi. Misc. Work=0.08 Mi. Comp. I-Beam Br. 222'	$26,000 Plans $15	495,000
		DISTRICT No. 10				
		M. E. Goul, District Engineer, Montauk Highway, Babylon, L. I., New York				
Nassau	FARC 54-31	Conduit Boulevard Pt. 3, S.H. 1699A Proj. U-947(10)	2.16	9" Cem. Conc. Pavt. (Var. Widen.) & Asp. Conc. Opt. (Widen and Resurf.)	$123,000 Plans $15	2,060,000

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders."

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

H. D. TALLAMY
SUPT. OF PUBLIC WORKS

OFFICIAL PROPOSALS

Bids: February 25, 1954

Repair of Damage to Dock at Berth 19

THE PORT OF NEW YORK AUTHORITY
PORT NEWARK, N. J.
CONTRACT O & M 223
PROPOSAL NO. 362

Sealed proposals for furnishing all labor, material and equipment necessary for the repair of damage to dock at Berth 19, Port Newark, N. J., will be received at the office of the Director of Purchase of The Port of New York Authority, Room 900, 111 8th Ave., New York 11, until 11:00 A.M. (E.S.T.) Thursday, February 25, 1954, at which time and place said proposals will be publicly opened and read.

Contract documents may be obtained upon request at the office of the Director of Purchase.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4116) will be received at Palisades, Idaho, until March 18, 1954, for furnishing labor and materials for earthwork and structures for relocation of Idaho State Highway No. 29 (U.S. No. 26), Indian Creek to State line, Palisades Reservoir, Palisades Project, Idaho. Location near Palisades Dam, Idaho. Principal items are: 70 acres clearing right of way; 693,000 cu. yds. excavation for about 5 miles of highway; 1,500 cu. yds. riprap; 3,300 lin. ft. corrugated-metal culvert pipe; and other work. Completion time 550 days. For particulars, address Bureau of Reclamation, Palisades, Idaho; or Building 53, Denver Federal Center, Denver, Colorado. W. A. Dexheimer, Commissioner.

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4103) will be received at Bismarck, North Dakota, until March 23, 1954, for furnishing labor and materials for additions and modifications to Bismarck, Washburn, and Jamestown Substations, Transmission Division, North Dakota, Missouri River Basin Project. Location: Near Bismarck, Washburn, and Jamestown, North Dakota. Principal items are: Excavation, 3970 cu. yds.; concrete, 510 cu. yds.; erecting steel structures, 127,000 pounds; furnishing and erecting steel structures, 108,000 pounds; furnishing and installing conduit, 2,960 lin. ft.; installing electrical wire and cable, 29,000 lin. ft.; installing switches, 20; installing 6 circuit breakers; and other work. Completion time 345, 365, and 560 calendar days respectively. For particulars, address Bureau of Reclamation, Bismarck, North Dakota; or Building 53, Denver Federal Center, Denver, Colorado. W. A. Dexheimer, Commissioner.

OFFICIAL PROPOSALS

APPEAR HERE EACH THURSDAY. PROPOSAL ADVERTISEMENTS ACCEPTED UP TO 10:30 A.M. FRIDAY FOR THE ISSUE DATED THE FOLLOWING THURSDAY. (Except for earlier holiday closing)

U. S. Government

Bureau of Reclamation, North Platte River District—11954-P5, Casper, Wyoming. UNITED STATES DEPARTMENT OF THE INTERIOR, BUREAU OF RECLAMATION. NOTICE IS HEREBY GIVEN that sealed bids on Invitation No. 703S-328 for furnishing and delivering structural steel for Lusk Rural Substation, Transmission Division, Wyoming, Missouri River Basin Project, will be mailed to P. O. Box 280, Casper, Wyoming or delivered to the office of the Bureau of Reclamation in time for the public opening at 2:00 p. m., Mountain Standard Time, February 18, 1954, at the office of the Bureau of Reclamation, Reclamation Center, Casper, Wyoming. Copies of the standard forms and of the invitations may be obtained from the following offices of the Bureau of Reclamation: R. J. Walter, Jr., Regional Director, Building No. 46, Denver Federal Center, Denver, Colorado; and I. J. Matthews, District Manager, P. O. Box 280, Casper, Wyoming. No charge for copies of the invitations furnished for bidding purposes; for all others $0.50 per copy, not returnable. Payments should be made by check or money order payable to the Treasurer of the United States: I. J. Matthews, District Manager.

OFFICIAL PROPOSALS

Bids: March 2, 1954

TOWN OF BABYLON, SUFFOLK COUNTY, L. I.

NOTICE TO CONTRACTORS
REFUSE DISPOSAL PLANT

Sealed bids for the construction of all Divisions of a Refuse Disposal Plant Project for the Town of Babylon in the County of Suffolk, New York, will be received by the Town Board at the office of the Town Board, Town Hall, Babylon, New York until 10:30 A.M. o'clock, Eastern Standard Time, March 2, 1954, and will then be publicly opened and read aloud at a meeting of the Town Board of the Town of Babylon.

The Information for Bidders, Form of Bid, Form of Contract, Form of Performance Bond, General Conditions, Specifications, and the Contract Drawings, may be examined at the office of the Town Clerk, Town Hall, Babylon, New York, or at the offices of the Consulting Engineer, Henry W. Taylor, 151 West Merrick Road, Freeport, New York, and copies thereof can be obtained upon the payment of a deposit of $25.00 for each set. The full deposit will be returned to any person submitting a proposal in accordance herewith and returning one copy of the plans and specifications in good condition within thirty days following the award of contract or rejection of the bid of such person; a refund of $10.00 will be made for any other sets of plans and specifications returned in good condition within thirty days following award of contract or rejection of bid covered by such plans.

Checks for deposits on Plans and Specifications shall be made payable to the Town of Babylon.

The Town of Babylon reserves the right to waive any informalities and to accept any bid or to reject any or all bids.

Each bidder must deposit, with his bid, cash or a certified check in an amount of not less than five percentum (5%) of the base bid, made payable to the Town of Babylon.

No bidder may withdraw his bid after acceptance thereof by the Town of Babylon, or within forty-five (45) days after the actual date of the opening thereof.

TOWN OF BABYLON
BY: ROWLAND SCOTT
Town Clerk

Dated Feb. 2, 1954

Bids: February 23, 1954

Lincoln Tunnel Third Tube

THE PORT OF NEW YORK AUTHORITY
NEW YORK APPROACH
LAND BORINGS
CONTRACT LT-160.046

Sealed proposals for making land borings for the New York Approach of the Lincoln Tunnel in connection with the Third Tube will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, February 23, 1954, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Engineer of Materials of the Authority, Room 1112, and copies will be furnished upon deposit of $15.00 per set. The deposit shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to the Engineer of Materials who will furnish the contract documents. The deposit will be remitted if the documents are returned in good condition, not later than forty days after the opening of proposals. The deposit will be forfeited if the documents are not so returned within the forty days.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, February 11, 1954

Bids: February 15, 1954

Filtration Units No. 3 & 4 and Filtered Water Reservoirs No. 4 & 5 Patuxent Filtration Plant

WASHINGTON SUBURBAN SANITARY COMMISSION
CONTRACT NO. 1342-W

Sealed proposals for the furnishing and erecting, on foundations prepared by others, of two filtration units, of 16.7 Mgd rating each, and two filtered water reservoirs, of 2.84 Mg capacity each, will be received at the office of the Washington Suburban Sanitary Commission, Hamilton Street, Hyattsville, Maryland, until Monday, February 15, 1954 at 2:00 P. M., Eastern Standard Time, at which place and time they will be publicly opened and read.

Plans and specifications may be obtained from the office of the Chief Engineer of the Commission, Hyattsville, Maryland, upon deposit of $50.00, which deposit will be returned to bidders or to those returning plans and specifications in good condition.

Raymond W. Bellamy
L. S. Ray
J. Norman Ager
Commissioners

Attest:
James B. Parkhill
Secretary-Treasurer

Bids: February 23, 1954

Route Construction

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Department for:

ROUTE S-28 (1927) ROUTE 18 (1953), SECS. 4B & 3A

Route S-28 (1927) Route 18 (1953), Sections 4B and 3A, from Bishop Street to Carpenter Road, Clifton Avenue Viaduct & Approaches, City of New Brunswick, Middlesex County. Federal Project No. U-112(4). Length 0.490 miles. The principal items of work are:

Estimated: Roadway Items
42,780 cu. yds. Roadway Excavation—Unclassified
88,216 cu. yds. Borrow Excavation
20,035 sq. yds. Macadam Base Course, 8" thick
20,035 sq. yds. Pavement Type MA-BC-2, 3" thick
1,856 sq. yds. Concrete Pavement Surface, Rein. 9" thick
2,802 lin. ft. Clay Pipe Sanitary Sewer, various sizes
1,755 lin. ft. Rein. Conc. Culvert Pipe, various sizes
48 Inlets and Manholes
11,425 lin. ft. White Concrete Curbs
Bridge Items
(Viaduct, Retaining Wall & Steel Sheet Bulkhead)
7,411 cu. yds. Concrete in Structures
393,720 lbs. Reinforcement Steel in Structures
333,560 lbs. Structural Steel
6,900 sq. ft. Steel Sheet Piling
3,311 lin. ft. Steel H Piles

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J., on Tuesday, February 23, 1954, at eleven o'clock (11:00 A.M.-EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Project" authorized by the provisions of Title 27 of the revised statutes of New Jersey and supplements, and by P. L. 413, 82nd Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, 24 Carroll Place, New Brunswick, N. J. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all unskilled labor employed on this contract shall be $0.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed:
STATE HIGHWAY DEPARTMENT
A. Lee Grover, Chief Clerk

CONTRACTORS
WATCH
THIS SECTION
for New Projects

Publish your announcements thru the "Proposal Section" of Engineering News-Record and get their bids.

OFFICIAL PROPOSALS

APPEAR HERE EACH THURSDAY. PROPOSAL ADVERTISEMENTS ACCEPTED UP TO 10:30 A.M. FRIDAY FOR THE ISSUE DATED THE FOLLOWING THURSDAY. (Except for earlier holiday closing)

Bids: March 9, 1954

Readvertisement

CONTRACT 688—GENERAL CONTRACT SUPERSTRUCTURES AND EQUIPMENT
CONTRACT 688E—ELECTRICAL EQUIPMENT
CONTRACT 688H—HEATING AND VENTILATING
CONTRACT 688P—PLUMBING AND GAS FITTING
For THE WESTCHESTER COUNTY, NEW YORK SANITARY SEWER DISTRICT OF NEW ROCHELLE SEWAGE TREATMENT PLANT

Sealed bids will be received in Room 508, County Office Building, White Plains, New York until 10:00 A.M. March 9, 1954 (Eastern Standard Time) immediately after which the bids will be publicly opened and read in Room 808 of said Building.

Bids have previously been received on August 14, 1953 and rejected. The work has been completely revised and is now readvertised.

Under Previous contracts, pipe lines and sub-structures for a primary sewage treatment plant have been completed.

The work under the General Contract 688 will include brick and concrete superstructures for three large and four small buildings having a cubical content of 860,000 cubic feet. The equipment to be installed consists of pumps, grit handling equipment, mechanical sludge collecting system for primary settling tanks, digester equipment, sludge, filter, incinerator and stack, laboratory, metering and chlorinating equipment for a designed population of 81,000 and flow of 31.5 M.G.D.

The work under the Electrical Contract 688E, the Heating and Ventilating Contract 688H, and the Plumbing and Gas Fitting Contract 688P consists of the remaining work necessary to place the sewage treatment plant in operation.

All contract domuments may be seen at Room 508, County Office Building. Bidders may procure plans and specifications for any of the four contracts upon a cash deposit of

CONTRACT 688 ..... $50.00
CONTRACTS 688E, 688H and 688P.. $20 Each

which deposit will be refunded to bidders only, provided that all plans and copies of specifications are returned in good condition within thirty days after award of the Contract or rejection of bids.

All bids must be accompanied by a certified check, payable to the County of Westchester, New York, in the following amounts:

For CONTRACT 688..... $75,000.00
For CONTRACT 688E..... $10,000.00
For CONTRACTS 688H and 688P.... $5,000.00 Each

The County reserves the right to waive any informalities in the bids, or to reject any and all bids. No bidder may withdraw his bid within forty-five days after the actual opening thereof.

DEPARTMENT OF PUBLIC WORKS
COUNTY OF WESTCHESTER
BY: JAMES C. HARDING
COMMISSIONER

Bids: February 23, 1954

Construction of Columbia Turnpike

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Department for:

COLUMBIA TURNPIKE,
FLORHAM PARK BOROUGH

Construction of Columbia Turnpike from Hanover Road to Columbia Bridge, Florham Park Borough, Morris County, Federal Aid Secondary Project No. S-187(1). Length 1.155 miles. The principal items of construction are: Estimated:

6,300 cu. yds. Roadway Excavation
4,300 cu. yds. Borrow Excavation
19,660 sq. yds. 5" Macadam Base Course
19,660 sq. yds. 3" Mod. Pen. Macadam
2,200 tons Bituminous Concrete
4,615 lin. ft. Plain Concrete Curb
2,604 lin. ft. Drainage
157 cu. yds. Class "C" Concrete

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, February 23, 1954, at eleven o'clock (11:00 A.M.—EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Secondary Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements, and by P. L. 769, 81st Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, 30 Speedwell Avenue, Morristown, N. J. The attention of bidders is directed to the special provisons covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $0.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, New Jersey, and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed:
STATE HIGHWAY DEPARTMENT
A. Lee Grover, Chief Clerk

Bids: March 3, 1954

Sewer Construction

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
DEPARTMENT OF FINANCE
DIVISION OF PURCHASES

NOTICE TO SEWER CONTRACTORS

Sealed bids for constructing Moshassuck Valley Interceptor, Sec. A., in Pawtucket, R. I., will be received at office of State Purchasing Agent, State House, Providence, until 11:30 A. M. Eastern Standard Time on March 3, 1954 and publicly opened and read at that time.

Project involves 6,100 ft. of 48-in. sewer of centrifugally cast concrete pipe, including 5,000 ft. in tunnel, and appurtenant work.

Drawings and contract documents may be seen at above office or office of Blackstone Valley Sewer District Commission, 102 Campbell Ave., East Providence, R. I., or Metcalf & Eddy, Engineers, 1300 Statler Bldg., Boston, Mass., weekdays, except Saturdays and holidays, 8:30 a.m. to 4:30 p.m. and may be obtained from office of State Purchasing Agent on $100 deposit.

Bid security $50,000 certified check, bid bond, or cash; performance bond 100 percent.

Prevailing wage rates and public work labor laws applicable.

FRANKLYN A. ADAMS
STATE PURCHASING AGENT

Contractors—

You have made the BID
You have other jobs to Complete

The Equipment to use on either a Rental or Purchase basis will be found on these pages. Check them NOW and see the Savings you can make.

CLASSIFIED SEARCHLIGHT SECTION ADVERTISING

EMPLOYMENT • BUSINESS • OPPORTUNITIES • EQUIPMENT—USED or RESALE

UNDISPLAYED RATE:
(Not available for equipment advertising)

$1.50 cents a line, minimum 3 lines. To figure advance payment count 5 average words as a line.

POSITION WANTED undisplayed advertising rate is one-half of above rate, payable in advance.

PROPOSALS, $1.50 a line an insertion.

INFORMATION:

BOX NUMBERS count as 1 line additional in undisplayed ads.

DISCOUNT OF 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).

EQUIPMENT WANTED or FOR SALE Advertisements acceptable only in Displayed Style.

DISPLAYED—RATE PER INCH:

The advertising rate is $17.10 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

AN ADVERTISING INCH is measured ⅞ inch vertically on one column, 3 columns—30 inches—to a page. E.N.R.

Send NEW ADVERTISEMENTS: To New York Office, 330 W. 42nd St., N. Y. 36 for February 25th issue closing February 12th.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

BUILDING ESTIMATOR and Quality Take-Off Man. Graduate Engineer preferred. Thoroughly experienced, permanent position with well established contractor with top-notch organization bidding competitively public works and commercial buildings throughout the South. Stanley W. Newman Company, Inc., P. O. Box 1646, Mobile, Alabama.

CIVIL ENGINEER—Well established company located in Southeastern part of the country has an opening for a graduate civil engineer who is capable of estimating bridges, docks, roads, airports and other heavy construction projects. Real opportunity for the right man. P-1431, Engineering News-Record.

WELL ESTABLISHED detailing concern — N. Y. C., Phila., area—needs fast accurate steel detailers, checkers. Usual privileges. Salary plus cash profit sharing every job. Give complete experience resume. P-1497, Engineering News-Record.

BUILDING ESTIMATOR — Graduate Engineer preferred. Must be thoroughly experienced in bidding and constructing of Sewer Disposal Plants. Well established Construction Company, bidding throughout Southeast. Wright Contracting Company, P. O. Box 1580, Columbus, Georgia.

Notice to Advertisers

Because of the Holiday, Washington's Birthday, February 22nd, the "Searchlight" pages of the

February 25th Issue of

ENGINEERING NEWS-RECORD

Close for press earlier than the usual weekly closing time.

The cooperation of advertisers is solicited in forwarding new copy, or changes of copy, to reach us accordingly.

FINAL CLOSING TIME
Display and Undisplayed Ads
Friday, February 12th

PROPOSALS
Thursday, February 18th

BRIDGE ENGINEERS

Recent Civil Graduate of accredited U.S. colleges. Should have not less than the following experience on bridges:

Detailers—2 years structural steel or reinforced concrete detailing.

Designers—5 years responsible work on structural steel and concrete including work on long span bridges.

Squad Leaders—3 years responsible charge of squad on structural steel detailing.

Please mail complete resume together with salary required to:

Howard, Needles, Tammen & Bergendoff
55 Liberty Street New York 5, N. Y.

CONSTRUCTION MANAGER

QUALIFIED ENGINEER with Degree or equivalent to handle all phases of general and commercial construction: ability to estimate, supervise, and take charge of administration, unusual opportunity for energetic and resourceful man with proven record to associate himself with a large and progressive company; salary and bonus.

P-1651 Engineering News Record
520 N. Michigan Ave., Chicago 11, Ill.

POSITIONS VACANT

ESTIMATOR AND Sales in Virginia on salary base with at least 15 years experience primarily in take-off, pricing and selling in structural and ornamental shop employing 80 men. Permanent position with progressive company. Applicant must have been similarly employed. State experience in detail. P-1549, Engineering News-Record.

ROAD DESIGNERS Wanted. Experienced preferred. Permanent — 38 hour week — Retirement plan. Reply stating experience, education, age. Wyoming Highway Department, Cheyenne, Wyoming.

WANTED: STRUCTURAL steel designer. Must be experienced in design of highway bridges and under 50 years of age. Submit brief outline of experience and state minimum starting salary acceptable. Address reply to the Bridge Division, Tennessee Department of Highways, Cotton States Building, Nashville, Tennessee.

CONSTRUCTION SUPERINTENDENT for institutional building in Rockland County to start March 1, 1954. State experience, age and salary. P-1631, Engineering News-Record.

WANTED: GENERAL Foreman or Superintendent for work on bridges, culverts, concrete sert-up work, etc. Location Central Illinois. Right salary for producer. P-1607, Engineering News-Record.

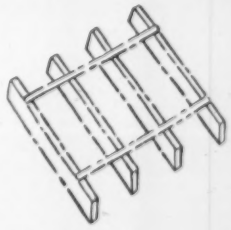
STRUCTURAL STEEL Detail Draftsmen and Checkers. All types of Structures. Interested in only top quality men with five or more years highly successful experience. Send complete written information for investigational purposes. Bristol Steel and Iron Works, Inc., Bristol, Virginia-Tennessee.

WANTED—MAINTENANCE & Survey Superintendent for upstate N.Y. equipment fleet. Consists of 35 trucks (tractors, dumps, service units), 55 trailers (flats, vans, tanks, dumps) shovels, rollers, bulldozers and allied equipment. Must be capable of taking full charge of Maintenance & Service Department housed in well-equipped shop with 12-man crew. Should know Diesel engines. Prefer man with some crushing plant or similar experience. Excellent chance for man big enough to grow with well-established, expanding organization. Housing available. P-1648, Engineering News-Record.

(Continued on the following page)

NATIONAL DISTRIBUTOR WANTED

Entire country open for distributor to stock and sell new line of open steel grating manufactured by well established firm.



Grating to be furnished distributor in stock panels. Distributor must stock, advertise, sell and do necessary fabricating. Only those sufficiently well capitalized to handle large volume on a national basis should apply.

RW-1543, Engineering News-Record
330 W. 42 St. New York 36, N. Y.

Civil Engineer (Graduate)

with ability to translate technical Swedish to English and vice versa. General knowledge of heavy construction experience and tunneling desirable.

Submit complete resume, references, date of availability and salary requirements in first communication.

P-1429, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

WANTED

CIVIL ENGINEERING GRADUATES FOR TURNPIKE WORK IN THE MIDDLE WEST

With experience in the following classifications.

SURVEYORS, STRUCTURAL DESIGNERS MATERIAL and SOILS ENGINEERS INSPECTORS.

Mail experience record with salary required to:

HAZELET & ERDAL
53 W. Jackson Blvd. Chicago 4, Ill.

POSITIONS VACANT

(Continued from preceding page)

WANTED: ASSISTANT Superintendent to handle industrial, educational, commercial building work including concrete and masonry on jobs up to 300,000 range. Location Central Illinois. P-1608, Engineering News-Record.

WANTED: SUPERINTENDENT for Illinois Highway paving and Grading. State age and experience. Salary plus per cent of profits. P-1644, Engineering News-Record.

OCEANOGRAPHY: UNITED Gas Fellowship in Engineering Oceanography—$3000—To be awarded to highly qualified graduate research engineer with broad scientific interests. Write: Head, Department of Oceanography, A. & M. College of Texas, College Station, Texas.

EMPLOYMENT SERVICE

OVERSEAS CONSTRUCTORS — Digest Guide of most active construction-engineering firms, oil co's., UN & gov't. agencies now hiring for foreign projects. Send $1.00. Cove-McKane Int., P. O. Box 126-E, NY 4, NY.

SELLING OPPORTUNITIES OFFERED

SALES ENGINEER—Pittsburgh, Pennsylvania and Albany, New York territories open with established national concern selling prefabricated metal products to engineering and construction markets. Positions offered are permanent and present excellent future with aggressive, progressive and expanding organization. Engineering degree desirable. Previous sales experience unnecessary. Ages 24 to 30. Car furnished. Complete training program. Salary and bonus. RW-1420, Engineering News-Record.

SALES AGENCY offered to man now contacting architects and industrials for product specifications. This proven item in the construction line now successfully handled as sideline by such persons. $250,000 yearly potential in industrial areas. Straight 5% commission with complete protection. Liberal manufacturer aid via published advertising and direct mail. Many choice territories still available. RW-8736, Engineering News-Record.

POSITIONS WANTED

CONSTRUCTION ENGINEER. Reg. Mature executive, experienced construction, estimating, specifications, design, maintenance, commercial, industrial buildings, housing. Contract management, sub-contracting. Some foreign experience, languages. Will go abroad. PW-1387, Engineering News-Record.

PROJECT MANAGER or General Superintendent desires connection with construction company doing foreign or domestic work. Broad experience in negotiation, estimating, organizing and supervision of all types of heavy construction as well as in over-all management. Highest references. PW-1505, Engineering News-Record.

GENERAL SUPERINTENDENT available soon. 20 years experience in building construction. PW-1447, Engineering News-Record.

CONSTRUCTION EXECUTIVE now employed in middle West, wants new connection in South or on West coast. Experience includes Field Supervision, Estimating and Bidding, Cost Controls, Sub-Contract, Administration, Owner-Architect relations Equipment Selection, Financial Management. Able to assume full responsibility in building contractor's organization. PW-1424, Engineering News-Record.

REGISTERED HIGHWAY engineer, and land surveyor, 30 years experience, 7 years construction superintendent highway and bridge construction. State side or offshore. PW-1397, Engineering News-Record.

WANTED POTENTIALLY profitable sales and installation Franchise for equipment or construction materials by graduate engineer with 19 yrs. contracting and promotional experience, successful record, aggressive, will invest to $15,000 prefer Northeast. PW-1557, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT, 20 years experience, buildings, bridges, sewage disposals, all types of heavy construction. Best of references. Live in house trailer, will travel. PW-1553, Engineering News-Record.

GRADUATE CIVIL Engineer. Seven years varied construction experience doing quantity take-off, assembling bids, coordinate sub-contractors, etc. Desire position in office of General contractor. Prefer Mid-West. Reply PW-1555, Engineering News-Record.

POSITIONS WANTED

CONSTRUCTION ENGINEER — Executive. Graduate. Twenty years varied experience. Location, Surveys, Design, Materials, Estimates and Supervision of Construction on Highways, Airports, Pipe Lines, Quarries. Available immediately for foreign project. Married status, excellent health, Spanish speaking. PW-1587, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT, concrete pipe manufacturer, considerable experience. PW-1556, Engineering News-Record.

CIVIL ENGINEER, B.S., Lic. in Va. 6 yrs. field & office on heavy constr. in U.S. & South America, speaks Spanish, will travel. PW-1597, Engineering News-Record.

CONSTRUCTION MANAGER. Industrial Constr. Exper. multi-project field supervision. Civil Engr. Avail Feb. 15. Anywhere USA. 522 Lime St., Redlands, Calif. Phone 4-6766.

SOILS ENGINEER (Graduate Geologist). Twenty years experience in Exploration Drilling, Testing, Investigations and Reports for Construction Industry. Excellent Spanish. Prefers foreign work. PW-1595, Engineering News-Record.

CIVIL ENGINEER—BSCE, 17 years field and office experience, steam power plants, earth dam, sewage and water plants, sewers, water mains. Desires permanent position. PW-1596, Engineering News-Record.

SUPERINTENDENT CONSTRUCTION. 30 years experience Industrial buildings, installation of machinery, heavy concrete and Earthwork, Air Fields, Bridges, Layout, estimating and dealing with Sub-contractors. Available 1st February. PW-1600, Engineering News-Record.

CONSTRUCTION EXECUTIVE—43 Married. M. A.S.C.E. requests inquiries from contractors requiring man capable of directing either engineering or construction activities. Many years experience in charge of construction and architect engineering offices. PW-1662, Engineering News-Record.

GENERAL CONSTRUCTION Supt. Steam-Elect. Power Plant preferred. Grad. & Registered C.E.; 20 yrs. varied experience with leading firms. Available March 1. PW-1661, Engineering News-Record.

GRADUATE C.E. (26) 3 yrs. design, analysis and field experience on buildings, dams, highways and mechanical equipment. Seeks position with future will relocate. PW-1606, Engineering News-Record.

QUALIFIED CONSTRUCTION man, over thirty years experience covering all types building and heavy construction, both field and office, and having sound knowledge of all details of contracting from bid to completion, seeks new connection as executive in Contractor's office or to handle large project. Inquiries solicited from Contractors requiring top man, were scope will permit full use of ability. New York or vicinity preferred. PW-1605, Engineering News-Record.

STRUCTURAL ENGINEER: over 25 years experience in structural steel and reinforced concrete. In charge of medium sized engineering organizations for last 15 years. Technical graduate. PW-1610, Engineering News-Record.

CONSTRUCTION ENGINEER, Age 34, married, experience on design, costs, supervision. Desires field position in Northeast States or Germany. PW-1436, Engineering News-Record.

SURETIES — CONTRACTORS — Architects — Owners: If your construction project needs speeding-up — coordinating — reorganizing, or taken over and managed with present personnel, or if you just need a lift, I probably can help you. 35 years Construction management and organizational work. Best of references from banks, sureties, contractors and architects. Inquiries invited B. F. Bleuer, 116-Mona Drive, Buffalo 15, N. Y.

CIVIL ENGINEER 26, family, 3 years with heavy contractor on USBR Power and irrigation projects. Experience all phases—purchasing, estimating, supervision, job planning. West, South West preferred. PW-1676, Engineering News-Record.

(Continued on opposite page)

Don't forget the

BOX NUMBER

When answering the classified advertisements in this magazine, don't forget to put the box number on your envelope. It's our only means of identifying the advertisement you are answering.

Engineers—Foremen—Office Men

Learn latest methods to organize and run work. Prepare for the top jobs. Send post card for details.

GEO. E. DEATHERAGE & SON
CONSTRUCTION CONSULTANTS
411 So. 5th Ave. Lake Worth, Florida

STRUCTURAL ENGINEERING
ARCHITECTURAL ENGINEERING
OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations. Forty-third year
Write today without obligation
WILSON Engineering Corp.
College House Offices HARVARD SQ. CAMBRIDGE, MASS.

LEARN ESTIMATING
Complete Building Estimators Course, also Building Labor Calculator for practicing estimators. Thirty-fourth year serving the building industry. For free trial and all particulars write:
TAMBLYN SYSTEM
1420 Gilpin St. Denver 6, Colorado

SEARCHLIGHT SECTION

This index is published as a convenience to the reader. Every care is taken to make it accurate but SEARCHLIGHT SECTION assumes no responsibility for errors or omissions.

Alabama Limestone Co. 65
Albert Pipe Supply Co., Inc. 66
Ambursen Dam Co., Inc. 66
American Air Compressor Corp. 66
Bass Engineering & Construction Co. 66, 67
Baltimore Contractors Inc. 65
Boyer, R. H. 67
Brandeis Machy. & Supply Co. 65
Buff 69
Carter Co., Robert 67
Contractors Machinery Co. 67, 68
Contractors Trading & Equipment Corp. 65
Costello, Patrick J. 65
Deatherage & Son, George E. 64
Dixson, H. V. 67
Dondlinger & Sons Construction Co. 65
Drachman Steel Co., Inc., Hy. 68
Forsythe Equipment Co., Inc. 65, 67
Frank, M. K. 68
Frazier-Davis Construction Co. 66, 67
Gillis & Co. 68
Glazer-Steel Corp. 65
Gordon Construction Co. 67
Greenpoint Iron & Pipe Co. 66
Greensburg Machine Co. 67
Gurian, George 65
Hazelet & Erdal 63
Hercules Hose & Rubber Co. 68
Hickerson, Roy D. 69
Howard, Needles, Tammen, Bergendoff 63
Hunkin-Conkey Constr. Co. 66
Hunter Tractor & Machy. Co. 66
International Hoist & Machine Co., Inc. 68
Judge & Co., Inc., Frank M. 67
Julian, Inc., James 65
Klempner Supply Co. 65
List & Weatherly Construction Co. 65
McDonald, J. C. 66
Midwest Steel Corp. 68
Mississippi Valley Equipment Co. 67, 68
Morrison Railway Supply Co. 68
National Blue Print Co. 69
Orban Co., Inc., Kurt 68
Pandolfo, S. F. 65
Peerless Drafting & Sales Co. 65
Schoonmaker Co., Inc., A. G. 67
Stanhope Inc., R. C. 68
Tagco Inc. 66
Tamblyn System 64
Warren-Knight Co. 69
Weiss Co., B. M. 67
Williams Construction Co. 67
Wilson Engineering Corp. 64

POSITIONS WANTED

(Continued from opposite page)

TUNNEL CONSTRUCTION Superintendent—20 years wide experience driving and concrete lining, excellent following. Available March first. Complete resume on inquiry. PW-1640, Engineering News-Record.

SUPERINTENDENT CONSTRUCTION, 28 years experience on bridge, grade separations, culverts, paving, sewage and water treatment plants, Turnpike experience. PW-1643, Engineering News-Record.

ATTORNEY-CIVIL Engineer—29—8 years experience as a Civil Engineer desires position with engineering organization, contractor, law firm or corporation where combination of engineering and legal knowledge will be utilized. New York area. PW-1614, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT or Engineer, 31, BSCE, 7 years heavy and industrial experience. Field supervision and office experience. Desire responsible position with progressive southern contractor. PW-1656, Engineering News-Record.

PART TIME WORK WANTED

PART TIME Job Wanted in design, quantity take-off, estimates, math. computations, checking, right of way by fast, and able structural engineer N.Y.C. PTWW-1645, Engineering News-Record.

SELLING OPPORTUNITIES WANTED

FORMER SALES Manager, 20 yrs. experience with large equipment manufacturer, wishes to represent industrial and construction equipment and material accounts for the western part of N. Y. State. RA-1469, Engineering News-Record.

WE ARE interested in securing sales agencies for road equipment, small road building tools, highway materials, etc. If you desire a high class, energetic sales representative kindly write Gleason Materials & Equipment Co., Inc., 205 Harrison St., Syracuse, New York.

WORK WANTED

Structural Design Work Wanted, Registered Structural Engineers desire sub-contracts for design, preparation of drawings, detailing struct. steel & reinf. conc. for buildings, bridges & special structures. WW-9894, Engineering News-Record.

Draftsman, Age 33, with ten years of experience, and Civil Engineer, 31 yrs. seven years broad experience. Prefer southern States. WW-1616, Engineering News-Record.

SHOP DETAILS
FOR
STRUCTURAL STEEL
Made and Checked by Experienced Men
PEERLESS DRAFTING AND SALES CO.
1320 Grandin Rd. S.W. Roanoke, Va.

GLAZER STEEL Corp.
Structural and Plate Steel Fabricators
Open capacity for quick delivery now available. We solicit your inquiries for Steel Fabrication and Warehouse Steel Products. Let us figure your jobs . . . Large or Small.
P. O. BOX 1390 KNOXVILLE, TENN.
Phone 4-8601

GIANTS UNDER THE EARTH
The Construction of the Brooklyn-Battery Tunnel
This is the story of the key men of the miraculous 20th century—those hardy human sandhogs who dug under water and blasted through earth and rock to build the slick, modern tunnels we use today for fast motor and railroad traffic.
Illustrated and photos. Per copy.....$1.00
Send check or money order to
PATRICK J. COSTELLO
152 E. 46th St. New York 17, N. Y.

MUST SELL
1¼ yd. Linkbelt Crane with 60 ft. boom. 315 cu. ft. Ingersoll Rand Diesel powered compressor mounted on Mack truck.
S. F. PANDOLFO
3120 Main St. Hartford, Conn.
Tel. Chapel 78345

STAKES
NEW
Suitable For Surveying
1" X 1¼" X 30"
25¢ each
KLEMPNER SUPPLY CO.
1371 Lexington Rd. Lou. Ky

FOR SALE
SIX—500 CU. FT.
INGERSOL-RAND DIESEL DRIVEN
AIR COMPRESSORS
Mounted on Pneumatic Tires—Good Condition
CONTRACTORS TRADING & EQUIPMENT CORP.
232 FULTON ST - N.Y. 7, N.Y. BArclay 7-3940

FOR SALE
P&H 255A Mobile Crane, 20 ton
100 foot Boom, 30 foot Jib Completely Overhauled $18,000.00
GEORGE GURIAN
1230 Randall Avenue, Bronx 59, New York
Dayton 9-5057

LARGE QUANTITY PILES
12"—53# and 14"—73# H, 20 ft. long, new, available for immediate shipment. Phone or write
BALTIMORE CONTRACTORS, Inc.
711 S. Central Ave. Baltimore 2, Md.
Phone: Broadway 6-2800—Mr. J. F. Smith

WANTED

WANTED ONE (1) HOT MIX BLACK TOP PLANT
State age, size and price.
Reply to:
JAMES JULIAN, INC.
405 S. DuPont Road Elsmere, Delaware

WANTED
Used, Good Condition 10 to 20 Thousand Sq. Ft. *UNIVERSAL FORM PANELS.*
Call or write
Dondlinger & Sons Construction Co.
P. O. Box 2033 Wichita, Kansas

GOOD SHOVEL BUYS
P & H Model 255A, ¾ cu. yd. shovel, 18' boom, 13'6" handle chain crowd tractor, type crawler, mounting w/20" pads, 11'1" overall length, 9'10" wide, powered by Waukesha MZA 86 h.p. 6 cyl. gasoline engine. Serial 12587. F.O.B. EVANSVILLE, IND. $7,950.00
Lorain Mdl. 77 1-¾ cu. yd. shovel w/Caterpillar diesel engine. Serial 6405. F.O.B. LOUISVILLE, KY. $8,000.00
LOUISVILLE MIDDLESBORO BRANDEIS EVANSVILLE PADUCAH
BRANDEIS MACHINERY & SUPPLY COMPANY
INCORPORATED
LOUISVILLE *Since 1908* KENTUCKY

1—Model 111M—Marion 4 Cu. Yd. Shovel—New in August—1953.
2—Model D-8 — Caterpillar Tractors — 1 equipped with Hydraulic Controlled Angledozer, and 1 equipped with Cable Controlled Angledozer—New in August—1953.
2—Model 36TD—22 Ton Rear Dump Euclids equipped with Power Steering and Torque Converter—New in August—1953.
3—Model 31TD—22 Ton Rear Dump Euclids equipped with Power Steering—New in August—1953.
The above mentioned equipment is subject to prior sale, and will be available—June—1954.
FS-1618, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

For Sale
25 TON BEDFORD BRIDGE CRANE
Fifty Foot Bridge. Runway Approximately 275 FEET LONG. Travel and Hoist Motors 40 H.P. Carriage Motor 5 H.P. 220 Volts Three Phase. In Excellent Condition. For Immediate Release. On Our Yard. Not Dismantled $25,000.00.
ALABAMA LIMESTONE COMPANY
RUSSELLVILLE, ALABAMA

BRIDGE JACKS FOR SALE
(Norton Mechanical Hi-Lift Type)
2—BB1 100-ton Self Lowering $160. each.
2—Style C 35-ton $65. each.
1—Style S 15-ton $17. each.
Good as new at ⅓ the price!
LIST & WEATHERLY CONST. CO.
231 W. 47th St., Kansas City, Mo.

FOR SALE
2 MANITOWOC Model 2000 DRAGLINES
Fully reconditioned, one Cummins, one Caterpillar Diesel. (Less Buckets).
FORSYTHE EQUIPMENT CO. INC.
37-11 Vernon Boulevard, Long Island City 1, N. Y.

MISCELLANEOUS EQUIPMENT

4—Ingersoll-Rand Wagon Drills
2—15 cubic yard Fruehauf Semi Trailers—Dump Body
2—15 ton Fruehauf Flat Bed Semi Trailers
2—Diamond T Tractors
1—D-8 Bulldozer
3—Euclid 8 cubic yard End Dump Trucks
2—Ames Vertical 60 H.P. Boilers
1—National Vertical 40 H.P. Boiler
1—Erie Horizontal 80 H.P. Boiler
All boilers are equipped with oil burners

Subject to prior sale

FRAZIER-DAVIS CONSTRUCTION COMPANY
1319 Macklind Avenue, St. Louis, Mo. STerling 1950
Box 188—Grahamsville, New York Grahamsville 2861

FOR SALE

Located in our Yard, Cleveland, Ohio, in excellent condition subject to prior sale:

6—25 YD. R. U. LeTOURNEAU SCRAPERS, overhauled, tires good, Serials S9062, S9519, S9643, S9656, S8991, S8992, $4500.00 each.

1—MODEL 9 BV EUCLID LOADER, Serial 9 BV-121, powered with GMC Diesel 671 RA 63-6A-9046, completely overhauled and good as new. Has new belt never used. Price $18,000.00.

1—6 TON BROOKVILLE DIESEL LOCOMOTIVE 36" gauge, International UD9 Engine 5 speed transmission, 20" rolled steel wheels, mechanical brakes, gas starting engine, electric lights, enclosed cab, used 3 months, price $1500.00.

Call Mr. Fuller Grund, Broadway 1-7860

THE HUNKIN-CONKEY CONSTRUCTION COMPANY
3459 E. 52nd Place Cleveland, Ohio

FOR QUICK, DEPENDABLE

COMPRESSOR SERVICE

AMERICAN AIR of JERSEY

GAS • DIESEL • STEAM • ELECTRIC

SELL—BUY—TRADE—RENT—REPAIR

A RENTAL COMPRESSOR FOR EVERY JOB

55 CFM Lindsay (GAS) Portable
60 CFM Worthington (GAS) Portable
70 CFM Smith (GAS) Portable
89 CFM 6 x 7 Worthington HB, 15 HP Elec
105 CFM Worth-IR-CPT Portable
107 CFM 7-7 x 7 Ingersoll FS-1 STEAM
129 CFM 7½ x 7 American AF-1, 20 HP
142 CFM Ingersoll Semi-Portable 25 HP
160 CFM IR-Worth Portable
165 CFM Smith 110SR Semi-Portable, 25 HP
195 CFM 8-9 x 9 Worthington HS STEAM
210 CFM Worthington (GAS or DIESEL) Port
211 CFM 9 x 9 Worthington HB, 40 HP Elec
279 CFM 11-10 x 11 Worthington HS STEAM
294 CFM 10 x 12 Worthington HB, 50 HP
315 CFM Worthington (GAS or DIESEL) Port
387 CFM Gardner Semi-Portable 75 HP
445 CFM Gardner Semi-Portable 100 HP
462 CFM 12-14½ x 13 American AF-S STEAM
500 CFM Worthington (DIESEL) Portable
538 CFM Worthington Semi-Portable, 100 HP
600 CFM Worthington (DIESEL) Portable
628 CFM 14 x 13 Ingersoll ES-1, 100 HP

MANY OTHERS TO CHOOSE FROM

GUARANTEED PERFORMANCE
COMPRESSORS SINCE 1902

American
AIR COMPRESSOR CORP.
[illegible] AVE & 48th ST. NORTH BERGEN, N. J.
Telephone UNion 5-4848

FOR SALE
48B BUCYRUS ERIE SHOVEL 2½ YDS.
Completely Overhauled
$24,000.
J. C. McDONALD
Box 145, Murdock 6-6600, Baltimore 20, Md.

FOR SALE
NORTHWEST Model 6
CRANE-DRAGLINE-BACKHOE
Murphy Diesel Power; Oversize Treads; Presently operating at Warren, Ohio.
BASS ENG. & CONSTRUCTION CO.
Birmingham, Mich.

LOW COST INSTALLATION AND OPERATION

CABLEWAYS
IMMEDIATE SHIPMENT
ELECTRIC, STEAM or DIESEL
CAPACITY 3 to 20 TONS
SELL, RENT or BUY

FOR DAMS, BRIDGES, BREAKWATERS, FILTRATION AND SEWERAGE PLANTS

FOR SPEED, ECONOMY, EFFICIENCY, FLOOD SAFETY, LABOR REDUCTION

AMBURSEN DAM CO. INC.
295 MADISON AVE NEW YORK

PIPE

SURPLUS NEW and USED FOR SALE

Pipe Sizes ⅛" to 72" OD

CUTTING-THREADING-FLANGING-WELDING
BEVELING-BENDING-COILING-LINING
TO ALL STANDARD SPECIFICATIONS

PIPE, VALVES & FITTINGS
pipe piling • culverts • valves
specialists in prefabricating pipe

"one call gets them all"

fittings • FLANGES • WELDING • IRON-STEEL

SPEEDLAY pipe systems

ALBERT PIPE SUPPLY CO., INC., Berry at North 13 Sts., B'klyn, N. Y.

DEPENDABLE EQUIPMENT
PRICED TO INTEREST BUYER

1—Model 25 Northwest Shovel
2—Practically new Model 140 Cleveland Trenchers
1—Buckeye Model 12 Trencher—wheel type
1—Unit ½ yd. Trench Hoe-Crawler
1—General Rubber-tired ½ yd. Shovel—Crane
1—1-yd. Austin-Western Patrol Sweeper
1—Speeder ⅜ yd. Shovel Crawler
2—Smith 3 yd. Hi Truck Mixers with or without trucks
1—Jaeger 3 yd. Hi Mixer with Truck
1—Unit ½ yd. Shovel
1—Caterpillar 50 Diesel Tractor

For detail information and prices write, phone or wire

HUNTER TRACTOR and MACHINERY CO.
327 SOUTH 16TH STREET • MILWAUKEE 3, WISCONSIN
Orchard 2-6580

FOR SALE—*Immediate Delivery*
C.I. Water Pipe and Fittings—
AWWA Standard

We specialize in pipe and fittings which are hard to get, having in stock such as the following:—
2000 linear feet 30" Class B—Pit Cast—Class B in 12 ft. lengths—Re-conditioned
6 Lengths 60" B&S Pipe, Cl. D. 12' long
3—60" x 24" Solid Sleeves, Cl. D.
1—60" B&S 45 deg. Bend, Cl. D.
20" to 36" B&S 45 deg. Bends
3" to 30" Y-Branches—Type 2

Also C. I. B&S Pipe from 2" to 36", C. I. Flanged Pipe from 3" to 24". Always on hand a complete line of C. I. Fittings—all sizes and kinds.

TAGCO, INC.
111 Front St. Hempstead, L. I., N. Y.
Tel.—Hempstead 2-5535 or 2-8857

PIPE
VALVES and FITTINGS
All Sizes in Stock
NEW—USED
GREENPOINT IRON & PIPE CO. INC
Bogart and Stagg Sts., Brooklyn, N.Y.

When you need
PIPE . . . fast

use this section, as many contractors do, as a pipe buying directory. It can save you time when you want to know, quickly, where to buy good new or used pipe.

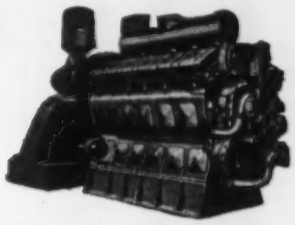
PILE DRIVING EQUIPMENT

Vulcan and McKiernan-Terry
Steam Pile Hammers and Extractors
Drop Hammers - Driving Caps
Steel Leads - Pile Driver Hose
Hoists and Boilers

CONTRACTORS MACHINERY CO.
Phone VAlentine 4740 — 2637 SOUTHWEST BLVD KANSAS CITY 8 MO

DIESEL POWER

IMMEDIATE SHIPMENT
• PURCHASE OR RENTAL
UNIT CAPACITIES—10 TO 2475 KVA
A.C.—50 AND 60 CYCLES
• ALSO D.C. UNITS



A PARTIAL LISTING OF OUR INVENTORY

KW	Make	Model	HP	RPM	KW	Make	Model	HP	RPM
1980	Nordberg	TS-217	2800	225	320	Enterprise	DSG-6	560	450
1136	Fairbanks Morse	38D	1600	720	300	General Motors	8-268A	450	1200
1100	General Motors	16-278A	1600	720	200	General Motors	8-268A	350	900
750	General Motors	12-567	1080	720	150	Worthington	CC-4	225	450
500	Baldwin	VO-8	750	514	150	Ingersoll-Rand	8-4	225	600
500	General Motors	8-278A	750	720	150	Buckeye	80	240	600
500	General Motors	8-567	720	720	100	Worthington	BB-5	150	600
480	Worthington	DD-8	700	360	100	General Motors	3-268A	150	1200
400	Ingersoll-Rand	8-8	600	720	60	General Motors	6-71	90	1200
350	Baldwin	VO-6	510	450	30	Internat'l Harvester	UD-14	45	1200

A. G. SCHOONMAKER COMPANY, INC.
ENGINE DIVISION, 50 CHURCH ST., NEW YORK 7, N. Y.

SURPLUS EQUIPMENT
FOR SALE OR RENT
With Option to Purchase
Rebuilt—A1 Condition

1 48B Bucyrus Erie Shovel 2 cy diesel
1 Model 6 N.W. Shovel 1½ cy diesel
1 Caterpillar D8 Bulldozer
1 New Shovel Front for Model 6 N.W.
1 Used Shovel Front for Model 25 N.W.

WILLIAMS CONSTRUCTION COMPANY
Box 145 Balto, 20, Md. Phone—Murdock 6-6600

FOR SALE
FUEL OIL TANKS
3—1000 Barrel bolted fuel oil tanks—8'-0" high x 30'0" diameter—above ground—located in Toledo, Ohio. Available Spring 1954.

THE ROBERT CARTER COMPANY
P. O. Box 756, Toledo, Ohio Adams 1155

FOR SALE
Complete 1-yd. Sauerman slackline cableway Sand and Gravel Excavating Outfit Includes main hoist, 40 ft. mast, tail tower, 1 yard bucket, large hopper. Also reclaiming hoist, mast and scraper. All blocks & guy cables.

THE GORDON CONSTRUCTION COMPANY
1900 - 31st Street Denver, Colorado

FOR SALE
BUCYRUS-ERIE 44-B CRANE-DRAGLINE
Buda Diesel power, oversize mounting, presently operating at Warren, Ohio.

Bass Eng. & Const. Co., Birmingham, Mich.

FOR SALE
CEDAR RAPIDS CRUSHING PLANT
AT A FAIR PRICE.

Complete with #4033 Hammer Mill, 4 x 12 Apron Feeder, 36" Belt Conveyor, 2 double-deck screens 4 x 12 and a #337 Caterpillar power unit. Used 140 days.

APPLY H. V. DIXSON,
PO Box 248, Phone 5-3661, Jacksonville Beach, Fla.

For Rent
SPEEDCRANES
LATE MODELS

Manitowoc Diesel Powered Speedcranes for rent. 25, 40 and 60 ton capacities with booms 100' or more, 20' and 30' jibs. Special price on long rentals.

FORSYTHE EQUIPMENT CO., INC.
37-11 Vernon Blvd. Long Island City, New York
Tel. STillwell 4-1030

NEW AND REBUILT
STORAGE BATTERY
LOCOMOTIVES
1½ to 10 Ton — 18" to 56" Track Gauge
GREENSBURG MACHINE CO.
Greensburg, Penna.

SALE OR RENT
1—780 CFM Chl. Pneu. OCE Comp. direct connected to 125 HP Syn. Motor.
1—5½ Ton B-8 Tandem Roller
1—⅛ Yd. Bay City Model 25 Crane
1—2 Yd. Link Belt 375 Dragline
1—2½ Yd. Northwest 95 Dragline
1—30 Ton Orton Diesel Loco. Crane
1—30 Ton Browning Diesel Loco. Crane
1—20 Ton Bay City Model 180 Truck Crane
1—20 Ton Lorain MC 414 Truck Crane
1—35 Ton P&H 355 Truck Crane, new 1952
1—25 Ton G.E. Diesel Elec. Loco.
1—30 Ton Plymouth Gasoline Loco.
1—45 Ton G.E. Diesel Electric Locomotive
1—65 Ton Whitcomb Diesel Elec. Loco.

B. M. WEISS COMPANY
Girard Trust Company Bldg.
Philadelphia 2, Pa.

FOR SALE
DIESEL ELECTRIC LOCOMOTIVES
STANDARD GAUGE

1—25 ton—1947—150 HP
1—44 ton—1943—380 HP
1—70 ton—1948—600 HP
2—120 ton—1947—1000 HP

EXCELLENT CONDITION

Frank M. Judge & Co., Inc.
7010 Empire State Bldg. N. Y.

FOR SALE or RENT
1¾ yd Manitowoc 3000A diesel cranes 65' boom. Cat. D13000 engine.
½ yd Link Belt LS50 Backhoe-Crane.
10 ton Unit No. 1020 Pneu. Tired Crane.
30 ton Industrial Brownhoist Gas Locomotive Crane. 70' bm.
44 ton GE Diesel-Elec. Loco. new 1951.
25 ton GE Diesel-Elec. Loco. new 1950.
30 yd Western & Koppel Air Dump Cars.
25 ton Wiley Steel Stiffleg Derrick.
1200 CFM Ing. Rand XRE, 200 HP Air Compr.
130 HP Christian 2D Diesel Hoist.
60 ton Clyde Elec. Revolver or Gantry.

MISSISSIPPI VALLEY EQUIPMENT CO.
509 Locust Street St. Louis 1, Mo.

LOCOMOTIVES
1—Plymouth—8 Ton 30" Ga.—Gas.
2—Plymouth 8 Ton Gas. Std. Ga.
1—G.E. 44 Ton—Heavy Duty Diesel Elec.—1951.
1—G.E. 25 Ton—Diesel Elec.
Brookville 6 Ton—36" Ga. Diesel.
1—Brookville 3 Ton—Gas—24" Ga.—#3042.
2—Brookville—12 Ton—STD. GA.—Diesel—New.
1—Whitcomb—30 Ton—Diesel—Std. Ga.—#40154.

1—WHITING TYPE B
35 TON—PIT DROP TABLE NEW BARGAIN
SOUTHWARK 500 TON HYDRAULIC
PRESS—HIGH-SPEED—LIKE NEW

1—Orton—15 ton—Diesel Locomotive Crane #42852 Very Good
2—Conway Mod. 75 Muckers, #256 & #305.
Southwark 100 Ton Hydraulic Press.
Mundy 2-Drum Elec. Hoist—300 H.P. Like New.
Bridgeford Axle Lathe.
Orton 30 Ton Diesel Locomotive Crane, Modern.
2—50 Ton Twin Hopper Cars.

R. H. BOYER
2005-13 W. Bellevue St. Philadelphia 40, Pa.
Phone Sagamore 2-7132

CRANES
1—2 cubic yard Lima Combination Crane and Shovel with 100 foot boom plus 25 foot jib.
1—1½ cubic yard Northwest Crane.

Subject to prior sale

FRAZIER-DAVIS CONSTRUCTION CO.
1319 Macklind Avenue, St. Louis, Mo.
STerling 1950
Box 188 Grahamsville, New York
Grahamsville 2861

FOR SALE

New and Used material—Immediate delivery from stock Angles, Channels, I and WF Beams, especially for Contractors needs

H BEAMS PILE SECTIONS

60 pcs 12" B P S 53# 60'
16 " 12" B P S 74# 75'
16 " 10" B P S 57# 67' 6"
34 " 10" B P S 42# 48'
23 " 10" B P S 42# 60'

Phone or Wire your steel requirements

We are also interested in purchasing your surplus material.
We assure you our prices will be the best obtainable.

HY DRACHMAN STEEL CORP.

Warehouse
14-23 34th Avenue, Astoria, New York
AStoria 8-4484 8-8023

Sales Office
563 East Tremont Ave., New York City, N. Y.
CYpress 9-5440

HOISTS

10 x 12 3-drum Lidgerwood steam with boiler
12 x 14 3-drum Lambert steam
7½ x 10 Lambert swinger steam
8¼ x 10 Clyde 3-drum steam—New
15 ton American stiffleg derrick 80' boom also two and three drum steam, gasoline and electric, with & without swingers, up to 75,000 lbs single line pull

INTERNATIONAL HOIST & MACHINE CO., INC.
556 Ferry Street Newark 5, N. J.

PILING

SURPLUS NEW and USED For Sale or Rent

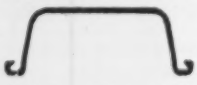
Fire Hose - Double Jacket

2½" 35¢ — 3" 45¢ ft.
Couplings Extra
Write for complete details
HERCULES HOSE & RUBBER CO.
2315 N. 15th St., Phila. Pa.

STEEL SHEET PILING

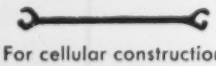
Available from stock. Will also roll to size and specifications.

LARSSEN Arch Web



High section modulus • Very great durability • Great longitudinal strength • High rigidity • Uniform interlock

UNION Straight Web



For cellular construction
High interlocking strength

Let us design your sheet piling structure ECONOMICALLY.

KURT ORBAN CO., INC.
205 East 42nd St., N. Y. 17, N. Y.
Phone: MU 4-7700

FOR SALE OR RENT

STEEL SHEET PILING

BRAND NEW

1336 pcs. 56 ft.-Carnegie MP-101
100 welded Y's 56 ft.

About mill price in carload lots.

IMMEDIATE SHIPMENT FROM CHICAGO

MISSISSIPPI VALLEY EQUIPMENT CO.
509 Locust St., Chestnut 4474, St. Louis, Mo.

RAILS-TIES

TRACK ACCESSORIES
NEW and RELAYING

FOR IMMEDIATE DELIVERY

RAILS

NEW—RELAY

300 TONS	80#ASCE	NEW
500 TONS	90#ASCE	NEW
1600 TONS	90#ASCE	RELAY
400 TONS	90#ARA-B	RELAY
700 TONS	100#ARA-A	RELAY
900 TONS	110#AREA	RELAY

80# & 90# RAILS 30' to 33' with Angle Bars
100# & 110# RAILS 33' to 39' with Angle Bars

New Light Rails and Turnouts Available for Prompt Delivery

MORRISON RAILWAY SUPPLY CORP.
814 Rand Bldg. Buffalo 3, N. Y.
Mohawk 3820

STEEL SHEET PILING

900 TONS ALGOMA B6—30 FT. CANADA
300 PCS. U.S. MP-101—Y-PCS. 56 FT. IN ILL.
498 PCS. U.S. MP-101—56 FT. IN ILL.
244 PCS. BETH. DP-2—25 FT. IN N. Y.
382 PCS. BETH. AP-3—20/25 FT. IN PA. & N.Y.
300 PCS. BETH. DP-2—60 FT. IN OHIO
188 PCS. BETH. DP-2—40 FT. IN N. J.
350 PCS. BETH. DP-2—50 FT. IN N. Y.
400 PCS. BETH. ZP-32—58 FT. IN FLA.
480 PCS. BETH. AP-3—60 FT. IN N. Y.
68 PCS. BETH. SP-4—60 FT. IN N. Y.

FOUNDATION EQUIPMENT

E-44McK. TERRY EXTRACTOR
15 McK. T. HAMMERS 11B3—10B3—S8—S5 & No. 5
Vulcan No. 0-1 & 2 Pile Hammers
9½ x 10 LAMBERT 3 DRUM STEAM HOIST
3 10x12 LAMBERT 3D STEAM HOIST

R. C. STANHOPE, INC.
60 E. 42nd St. N. Y. 17, N. Y.

NEW—RAILS—Relayers

All sizes and weights. Also frogs, switches, spikes, bolts, tie plates, contractors' and mine equipment carried in stock.

M. K. FRANK

480 Lexington Ave. New York, N. Y.
Park Bldg. Pittsburgh, Pa.
Reno, Nevada Carnegie, Pa.

STEEL SHEET PILING

150—Pcs. M-116	in 60'	—Chicago
55—Pcs. I-27	in 32 to 34'	—Missouri
190—Pcs. M-116	in 25 to 35'	—Nebraska
100—Pcs. I-27	in 27 to 35'	—Kansas City
125—Pcs. M-116	in 27 to 30'	—Kansas
83—Pcs. M-112	in 25 to 65'	—North Dakota
80—Pcs. M-116	in 25 to 30'	—Iowa
80—Pcs. I-27	in 25 to 29'	—Nebraska
900—Pcs. I-23	in 15'	—Illinois
170—Pcs. I-23	in 13 to 16'	—Nebraska

Available for Prompt Shipment
Other Lots at Various Locations

CONTRACTORS MACHINERY CO.
Phone: VAlentine 4740
2617 SOUTHWEST BLVD
KANSAS CITY 8, MO

We do a Nation-Wide business in

STEEL SHEET PILING

IMMEDIATE SHIPMENT

1900 pcs. 72-16 ft. Carn. MP-101-West Coast
164 pcs. 60-50 ft. M-116 & M-115-Illinois
95 pcs. 60-30 ft. Beth. DP-2-New York
139 pcs. 30 ft. Inland I-23-Kentucky
112 pcs. 40 ft. Larson 11-Alabama

Other lengths & sections used & new at other locations in United States for rent.
We have Nation-wide reputation for effecting QUICKEST SHIPMENTS
All sizes Vulcan & McKiernan Pile Hammers & Extractors for rent—Shop Rebuilt
Regardless of location of job. Wire, Write, or Phone

MISSISSIPPI VALLEY EQUIPMENT CO.
509 Locust St., Chestnut 4474 St. Louis, Mo.

RAILROAD Cross and Switch TIES

Promptly from adequate stocks
NEW and USED *(as available)*

GILLIS & COMPANY
29 East Madison St. Chicago 2

If there is anything you want

or something you don't want that readers can supply—or use—*advertise it in the*

Searchlight Section

RAILS

NEW — RELAYING — TRACK ACCESSORIES
MIDWEST STEEL CORP.
502 DRYDEN STREET
CHARLESTON, W. VA
IMMEDIATE DELIVERY

PROFESSIONAL SERVICES

NEW ENGLAND

Jackson & Moreland
Engineers and Consultants
Utilities and Industrials
Design and Supervision of Construction
Reports—Examinations—Appraisals
Machine Design—Technical Publications
Boston New York

Metcalf & Eddy
ENGINEERS
Investigations Reports Design
Supervision of Construction
and Operation
Management Valuation Laboratory
1300 Statler Building, Boston 16

MIDDLE ATLANTIC

Edwards, Kelcey & Beck
Reports, Design Supervision, Expressways, Port & Harbor Works, Terminals, Tunnels, Bridges, Water Supply, Industrial Plants, Traffic and Management Studies.
3 William Street 250 Park Avenue
Newark 2, N. J. New York 17, N. Y.

Porter, Urquhart & Beavin
O. J. Porter & Co.
Consulting Engineers
Airports-Highways-Dams-Structures
Foundations-Stabilization-Pavements
415 Frelinghuysen Ave., Newark 5, N.J.
76 Ninth Ave., New York 11, N. Y.
3568 West Third St., Los Angeles 5, Calif.
516 Ninth St., Sacramento 14, Calif.

Ammann & Whitney
Consulting Engineers
Design — Construction Supervision
Bridges, Buildings, Industrial Plants, Special Structures, Foundations, Airport Facilities, Expressways.
76 Ninth Avenue, New York 11, N. Y.
724 E Mason Street, Milwaukee 2, Wis.

E. Lionel Pavlo
Consulting Engineer
Design, Supervision, Reports, Bridges, Highways, Expressways, Marine Structures, Public Works, Industrial Construction and Airports
7 E. 47th St. New York 17, N. Y.

Preload Engineers Inc.
Founded - 1934
Consultants in Prestressed Design
Designers of more than 800 prestressed concrete bridges, buildings, tanks and high pressure pipe lines erected in North America since 1934.
Curzon Dobell *E. H. Thwaits*
Eric Molke *Cedric Steiner*
955 North Monroe Street, Arlington, Va.

Severud-Elstad-Krueger
Consulting Engineers
Structural Design - Supervision
Reports - Buildings - Airports
Special Structures
415 Lexington Avenue
New York 17, N. Y.

Albright & Friel, Inc.
Consulting Engineers
Water, Sewage and Industrial Waste Problems, Airfields, Refuse Incinerators, Power Plants, Industrial Buildings, City Planning, Reports, Valuations, Laboratory.
121 So. Broad St., Philadelphia 7, Pa.

Frederick H. Dechant
Consulting Engineer
Chairman of the Board.
Frederic R. Harris Inc.
Water Works, Industrial Wastes, Sewerage, Recovery Processes, Hydraulic Works, Gas Plants
Phila.: Fidelity Phila. Trust Bldg.
New York: 27 William St

SOUTH

Duval Engineering & Contracting Co.
General Contractors
FOUNDATION BORINGS
For Engineers and Architects.
Jacksonville, Florida

Rader Engineering Co.
Water Works, Sewers, Refuse Disposal, Ports, Harbors, Flood Control, Bridges, Tunnels, Highways, Airports, Traffic, Foundations, Buildings, Reports, Investigations, Consultations.
111 N.E. 2nd Ave., Miami 32, Florida

MIDDLE WEST

The Osborn Engineering Co.
DESIGNING-CONSULTING
Industrial Plants Office Buildings
Stadiums Grand Stands Field Houses
Bridges Garages Laboratories
7016 Euclid Ave. Cleveland 3, Ohio

Consoer, Townsend & Associates
Water Supply, Sewerage, Flood Control & Drainage, Bridges, Express Highways, Paving, Power Plants, Appraisals, Reports, Traffic Studies, Airports, Gas & Electric Transmission Lines.
351 East Ohio St., Chicago 11, Illinois

Harza Engineering Co.
Consulting Engineers
L. F. Harza
E. Montford Fuetk Calvin V. Davis
Hydroelectric Plants and Dams
Transmission Lines
Flood Control, Irrigation
River Basin Development
400 West Madison Street Chicago 6

GEOLOGISTS

Geologic Associates
ENGINEERING GEOLOGISTS
Studies and Reports
Foundation Investigations
Specialized Drilling and Sampling
P.O. Box 6096 — Nashville, Tenn.
9-1519 Phones 8-4061

MARINE DIVING

Walter Detrick
Marine Diver
Construction • Repair • Salvage
Quincy, Illinois
9006 Phones 750

INSPECTION & TEST

Johnson Soils Engineering Laboratory
Engineering design and construction tests run from MOBILE LABORATORY UNITS at construction site. Field load bearing tests.
193 West Shore Ave., Bogota, N. J.
Bogota-Hubbard 7-4408

CHECK this Section whenever you need professional advice.

SEARCHLIGHT SECTION

SURVEYING INSTRUMENTS

USED • REBUILT • SALE • RENT • REPAIRING

SPECIALIZED REBUILDING
of surveying and engineering instruments.
All makes and models expertly repaired in modern shop. All work guaranteed.
USED REBUILT INSTRUMENTS
for sale or rent
ROY D. HICKERSON
8 N. EDMONDSON AVE. INDIANAPOLIS 19, IND.

RE-BUILT REPAIR RENT REAL EXPERTS BUFF
ALL MAKES

69 Day St., New York

ENGINEERS

are in constant need of service on surveying instruments. They want to have them rebuilt—repaired. Or they may be in the market for rebuilt equipment. They use this page as a buying reference. So if you can help them, keep your advertisement on this page where it can be seen..

FROM STOCK
Brand New & Rebuilt
TRANSITS & LEVELS
Fully equipped modern shop—all makes and models repaired — all work guaranteed — instruments rented
Midwest Representative: W. & L. E. Gurley
NATIONAL BLUE PRINT CO.
Established 1914.
210 S. Canal St. Chicago (6), Ill.

TRANSITS and LEVELS
NEW OR REBUILT
SALE OR RENT
HEADQUARTERS FOR REPAIRS — any make

We will buy or trade in old Transits, Levels, Alidades, etc. Send instruments for valuation.
Write for Catalog NR-402 of new engineering Instruments, Engineering Field Equipment and Drafting Room supplies and NRL-402 for list of *rebuilt* instruments.
WARREN-KNIGHT CO.
Mfrs. of Transits & Levels
136 N. 12th St. · Philadelphia 7, Pa.

STEEL DOES IT BETTER ...TRI-RIB DOES IT BEST!

TRI-RIB STEEL ROOF DECK

saves valuable structural steel!

Lighter, stronger Tri-Rib Roof Deck *does* cut supporting steel requirements—cuts it by as much as 20%! That's because Tri-Rib reduces dead load up to 22 lbs. per sq. ft., permits use of fewer columns, shallower footings, no sub-purlins. Get full details today. Write us for specifications, or see our catalog in Sweet's Files.

Designed in accordance with specifications adopted by A. I. S. I. for light gauge structures, dated January, 1941.

DESCRIPTION

METAL THICKNESS: 18, 20, or 22-Gauge Cop-R-Loy Steel sheets.

FINISH: Zinc chromate iron oxide primer coat baked on after fabrication.

LENGTHS: up to and including 22 feet, 6 inches.

WIDTH: 18 inches.

PANEL WEIGHT: 50 to 67 lbs., depending upon size of panel.

RIB DEPTHS: 1½", 1¾", 2", 2½", 6" on centers.

DEAD WEIGHT: 8 to 10 lbs. per sq. ft. when insulated with built-up roofing.

Wheeling

WHEELING CORRUGATING COMPANY • WHEELING, WEST VIRGINIA

Atlanta Boston Buffalo Chicago Columbus Detroit Houston Kansas City
Louisville Minneapolis New Orleans New York Philadelphia Richmond St. Louis

FLUID BRAKING installed in heavy-duty Euclid trucks increased life of standard brakes six to eight times.

Allison's new device gives brakes a break

A new fluid braking device is reported to provide positive control over the downhill speed of heavy-duty, off-highway trucks without wear on the standard friction brakes. At the same time, it was found that trucks equipped with the new helper brakes averaged 50% more trips in a specified time than those equipped with the standard types alone.

Called the Torqmatic brake, the new system is an added package to the Allison Torqmatic converter now in use in a number of heavy-duty truck models. The new device is not a friction type and therefore has no parts to burn up or wear out under heavy use. Instead it consists of three major parts: a rotor assembled as an integral part of the converter output shaft; stator vanes cast into the housing enclosing the rotor; and a control valve.

As the truck moves downhill, the operator opens the control valve admitting oil to the brake. The paddles of the rotor churn the oil against the stator vanes and thereby place a drag on the converter-transmission shaft. If stronger braking is required, more oil is admitted to the brake.

In this way the operator always has the vehicle under control and he needs to use his foot brake only for complete stopping or "snubbing" on curves.

On the downhill grade the oil not only does the braking but also absorbs the heat generated. The pumping action of the rotor circulates the oil to an exchanger where the heat is harmlessly dissipated. Source of the oil supply is the lubricating system for the converter and transmission, so after cooling, the oil is returned to the reservoir for reuse.

The new brake has been undergoing a number of field service tests since August, 1952, and, now in commercial production, it can be specified on new trucks or field installed on vehicles already equipped with Allison Torqmatic drives. ALLISON DIV. OF GENERAL MOTORS, SPEEDWAY CITY, INDIANAPOLIS 6, IND.

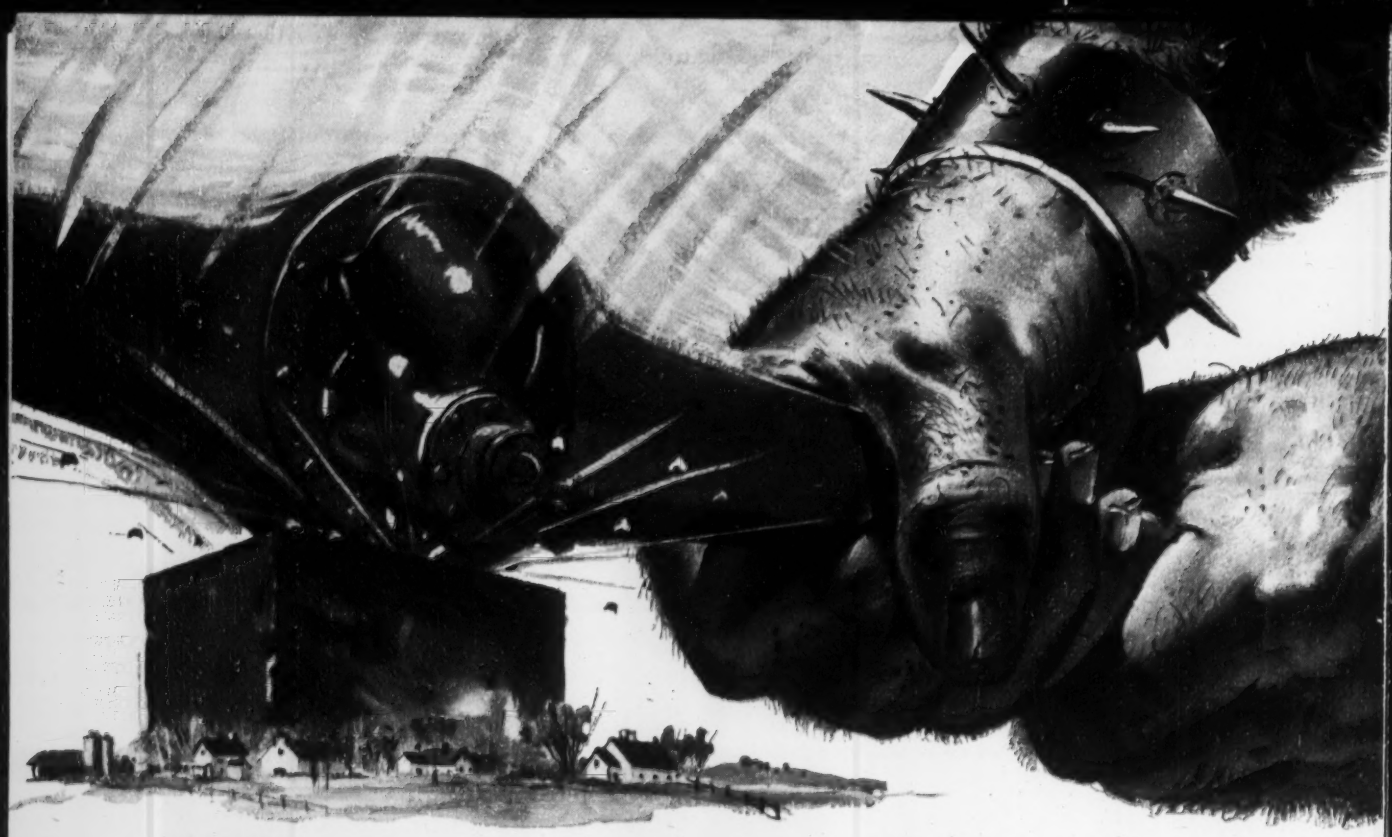
Contraction joint sawing time cut

The first tests of a new production-type contraction joint cutter for portland cement concrete paving have just been completed on the new Torrey Pines State Highway widening project near San Diego, Calif.

The results of this test indicate a cycling time of 3 min per joint, including moving machine to the next location, but this time will, of course, vary with the qualities of the concrete. It is reported that all contraction joints on the Torrey Pines job were cut without difficulty and no ragged edges occurred even on the control joints, which were greenest. Further, is is said that once adjusted for the conditions encountered, the machine required no further changes during the entire run.

The new machine measures 14 ft 6 in. across—it spans the slab—and is 8 ft deep. It is equipped with rubber tires and is designed to ride either on the header boards of the new slab or ride with one side on the headers and

(*Continued on page 74*)



We give truck axles a brutal

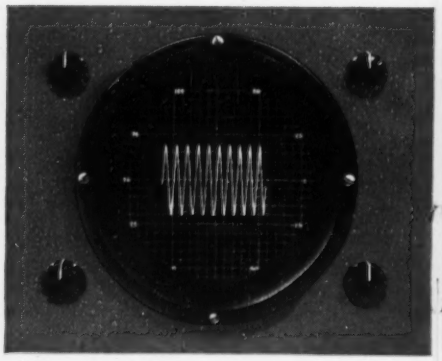
in the new Timken-Detroit indoor proving ground . . . and only

We torture them . . . shock-load, over-speed and jerk them . . . twist, strain and abuse them. We match every on-the-job hauling condition . . . then throw in a few devilish tricks of our own!

The result? You know for sure that *any* Timken-Detroit axle can take more abuse on the job it was built for than any other axle made!

To prove it, we moved a huge proving ground indoors. In one room we can simulate any hauling situation—our engineers can apply 50 years of experience to perfecting axles for modern trucks, buses and trailers, and measure performance with scientific precision.

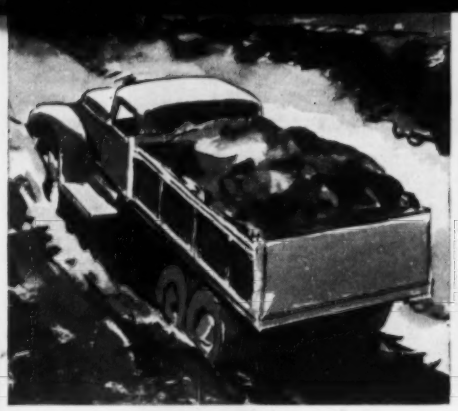
This research pays off in longer truck life; less maintenance, repairs and downtime; lower operating costs. No wonder Timken-Detroit axles with Hypoid gearing rate "first" with wise truck owners!



Whatever you haul . . . simulated service conditions show up electronically on a screen like this. For instance—a heavily loaded truck on a bumpy, twisting road—then on a level express highway or long grade. What happens to the axle and gearing is measured, charted with absolute scientific accuracy.

TDA controls quality in this "Torture Chamber"

Here we simulate actual highway conditions . . . test quality and performance of axles under any hauling situation, such as duplicating the kinetic energy of 80,000 lbs., G.C.W., at 60 m.p.h. All tests are repeated hour after hour with an automatic cycling control.



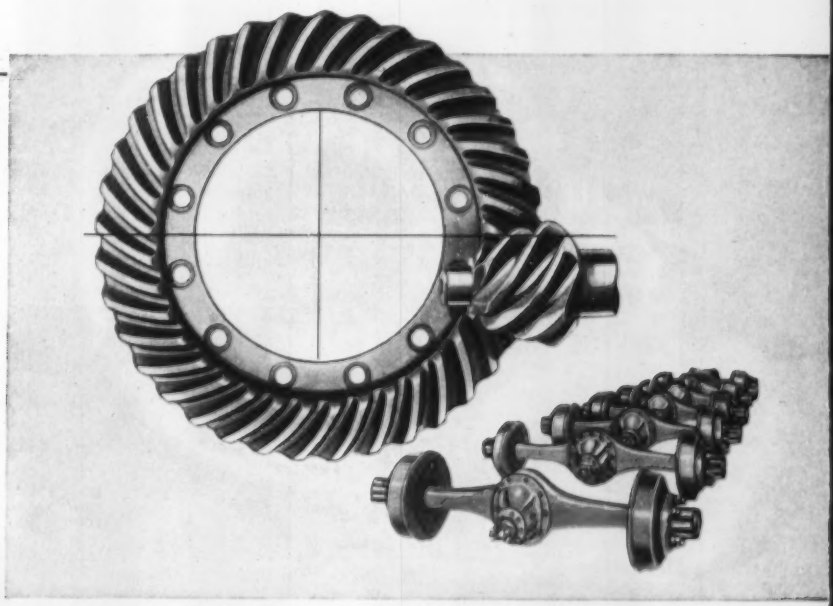
You're hauling gravel . . . you want truck axles with pulling power to get you out of the hole with a capacity load. You want steady, even power for long grades . . . speed on level road. You want all this at lowest r.p.m. *plus* easy, low-cost maintenance, economy of operation and little downtime. Timken-Detroit "Torture-Tested" axles are for you!

You're hauling wet concrete . . . you can't afford axles that "conk out" en-route. You want axles you know *for sure* will take off and get the mix to the job—*on time*—ready to pour. You don't want costly maintenance and repairs or shop-time. You want rugged Timken-Detroit "Torture-Tested" axles with Hypoid gearing. They save you money.

You're hauling dirt . . . you want axles that can get the load up and out of anywhere . . . then speed it to the dumping area and get back quick. You don't want to beat your engine to death . . . or have profit-eating maintenance, repairs or downtime. You want axles that can stand up—Timken-Detroit "Torture-Tested" axles with Hypoid gearing.

beating

Timken has it!



TIMKEN Detroit AXLES

TIMKEN-DETROIT AXLE DIVISION
ROCKWELL SPRING AND AXLE COMPANY
DETROIT 32, MICHIGAN

The Accepted Standard — TRADE MARK REGISTERED

"TORTURE-TESTED"
to Save Money on the Job

WORLD'S LARGEST MANUFACTURERS OF AXLES FOR TRUCKS, BUSES AND TRAILERS

Next truck you buy . . . insist on Timken-Detroit Hypoid gearing

Hypoid gearing for truck axles was pioneered by Timken-Detroit.

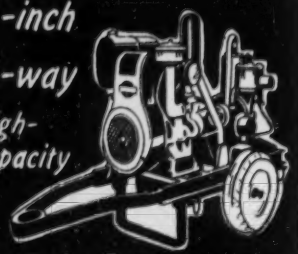
Proved in billions of ton-miles of actual operation. Designed to give the slower gear ratios necessary for modern engines without loss of strength. Pinion is bigger, stronger . . . bearings are larger . . . more teeth in contact reducing loading per unit of contact area. Torque transmitting capacity increased to step up performance and rugged power.

Get interchangeability, too!

Only Timken-Detroit has Hypoid gearing in a complete "family" of 7 basic axle capacities—in the entire range of medium and heavy-duty requirements. This advanced-related design incorporates the same features of construction and interchangeability in single-speed; single-speed double-reduction; and two-speed double-reduction final drive units.

Plants at: Detroit, Michigan
Oshkosh, Wisconsin • Utica, New York • Ashtabula, Kenton and Newark, Ohio • New Castle, Pennsylvania

NEW!
3-inch
3-way
High-capacity
Small-size Pump
Pat. Appd. For



THREE PUMPS IN ONE—open sump, diaphragm and wellpoint. SELF-PRIMING — automatically operated. Vacuum cuts in and cuts out as required. THE SMALLEST WELLPOINT PUMP EVER CONSTRUCTED—rated capacity 350 gpm at heads up to 60' and suction lifts up to 28'. MAXIMUM PUMPING CAPACITY — air separator chamber removes entrapped air. GASOLINE ENGINE OPERATED—9 hp. EASILY TRANSPORTED—mounted on rubber-tired trailer. That's the completely new, in-every-way-better "complete" 3" Special. For sale or for rent. Get the facts—get this pump. For particulars—write today.

COMPLETE MACHINERY & EQUIPMENT COMPANY, INC.
36-40 11TH STREET
LONG ISLAND CITY, N. Y.

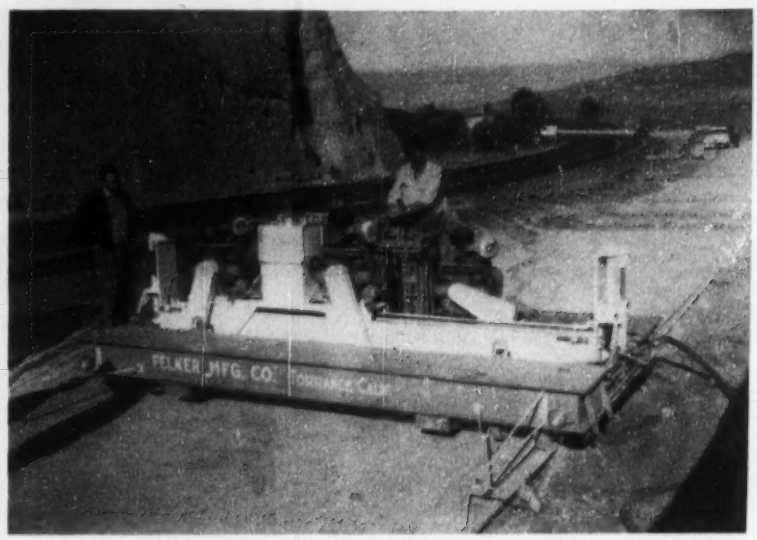
COMPLETE
WELLPOINT SYSTEMS

from
●
●
OFFICE MANAGER
●
to
●
GENERAL MANAGER
●
●

yes, that is the quality of the personnel available to your organization through the Classified Advertising pages of ENGINEERING NEWS-RECORD.

Classified Advertising Division
ENGINEERING NEWS-RECORD
330 W. 42nd St. New York 36, N. Y.

GUNITE
PNEUMATICALLY PLACED CONCRETE
DENSE · DURABLE · HIGH STRENGTH
for
Restoring Disintegrated Concrete
Dam, Dock and Bridge Repairs
Steel Encasement and Fireproofing
Sewer, Water Pipe and Penstock Linings
Stack and Bunker Linings
Wood Pile Casings—Pressure Grouting
Prestressed Tanks and Silos
Get in touch with us for engineering data and estimates
GUNITE CONSTRUCTION CORPORATION
220 LEXINGTON AVE., NEW YORK 17, N.Y.
MURRAY HILL 3-7699



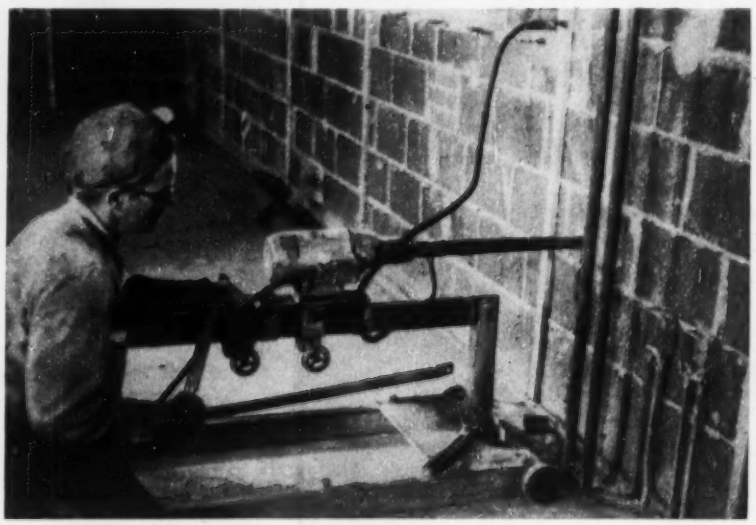
HIGH SPOTTING of operator gives him a full view of the joint cutter's operation.

the other on a parallel existing slab. If conditions permit, it can also roll directly on the green slab.

An H-beam serves as a track across the slab and supports a traversing carriage carrying two or more heavy-duty spindles, which operate simultaneously; each carries a Di-Met concrete blade that is lowered into the concrete and takes a 6-ft traverse. The two cuts are aligned and produce a single slot with no offset at the juncture.

Each blade is driven by an independent 26-hp gasoline engine while a third engine of equal horsepower drives a three-stage hydraulic pump. Individual hydraulic motors on the rubber-tired wheels provide power for road travel.

(Continued on page 76)



New drill goes through concrete fast

A complete drilling unit is now available for taking cores in hard concrete. The drill is a Penndrill Model E and includes a lever-operated press for advancing or retracting the bit. It is adapted for diamond core drilling of vertical, horizontal or angle holes and operates on either 115 or 230-volt AC or DC current—a portable 1,500-watt, 115-volt DC electric plant is available as optional equipment. The rig is reported to drill neat, clean holes from ½ to 6½ in. in diameter through a variety of hard, abrasive materials. The drill is also adapted for drilling with steel hole saws and twist drills. Pennsylvania Drilling Co., 1205 Chartiers Ave., Pittsburgh 20, Penna.

"We recommend reoiling Plyform with the fine oil we use... UNION."

Howard A. Cusic, purchasing agent, Multnomah Plywood Corporation, Portland, Oregon

"We've found that Union's Red Line 100 Oil gives the deep, even oil penetration of both faces which contractors require of Plyform panels for concrete forming use.

"Since we started treating with Union we have not received a single complaint of sticking or other service failure. For longest service life, we recommend reoiling Plyform panels between each job with the same fine oil we use for initial treating... Union."

Whether it's a special purpose oil or day-in, day-out, dependable lubrication you're looking for, you'll find it pays to consult your Union Oil representative. He can recommend the petroleum products that save you money by doing the job better. Call him and see.

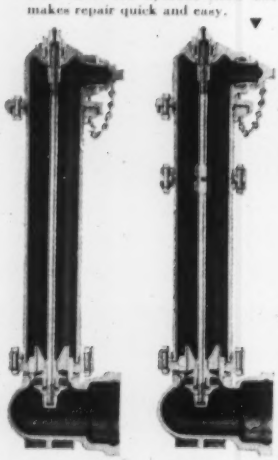
UNION OIL 76 COMPANY OF CALIFORNIA

LOS ANGELES: Union Oil Bldg. • NEW YORK: 45 Rockefeller Plaza • CHICAGO: 1612 Bankers Bldg.
ATLANTA: 401-02 Atlanta National Bldg. • NEW ORLEANS: 644 National Bank of Commerce Bldg.

Friction's needed for a match but it's no help in a fire hydrant

Friction causes loss of water pressure and reduces the effectiveness of fire-fighting equipment. That's why R. D. Wood Hydrants are designed to cut friction way down—and why so many communities rely on them for fire protection.

The R. D. Wood Hydrant can be furnished with breakable flange and stem coupling at extra cost. Both are built to break with a heavy blow. This saves the hydrant itself and makes repair quick and easy. ▼



THE R. D. WOOD SWIVEL JOINT HYDRANT:▶ All internal parts, including drain valve seat, removable through barrel • all-bronze stuffing box • completely revolving head • compression-type valve, cone shaped to prevent water hammer • automatic drain valve • bronze main valve seat screws directly into elbow with straight, not tapered threads • mechanical-joint pipe connections if specified

R.D. Wood Swivel Joint Hydrants

Public Ledger Building, Philadelphia, Pa. | Manufacturers of "Sand-Spun" Pipe (centrifugally cast in sand molds) and R. D. Wood Gate Valves

GUNITE
Since 1915
CONCRETE
SAND AND CEMENT
Placed by Air

We own and operate 43 complete cement gun outfits. We have completed over 2600 exclusive GUNITE contracts.

Send for specifications and bulletins
No obligation

See our catalog in Sweets

GUNITE CONCRETE & CONST. CO.
2304 WOODSWETHER RD., KANSAS CITY 5, MO.
2616 W. WALNUT, CHICAGO 12, ILL.
2036 ADDISON, HOUSTON 25, TEXAS
St. Louis · Minneapolis · Denver · New Orleans

DUDGEON HYDRAULIC JACKS

SALES
RENTALS
•
CAPACITY TO 600 TONS

FOR:
PILE TESTING
•
UNDER-PINNING
•
BRIDGES
•
PIPE PUSHING
•
SOIL TESTING

Write to Dept. ⑧

RICHARD DUDGEON INC.
789 BERGEN ST. • ST 9-4040 • BROOKLYN, N. Y.

NEW PRODUCTS

By means of selector valves, hydraulic fluid is diverted as required to accomplish several functions: forward and reverse travel, steering, hydraulic lifting and lowering of the track and blades and transverse travel of the diamond blade carriage.

Blade traversing speed is infinitely variable from 0 to 25 fpm. Road speeds are adjustable up to 75 fpm.

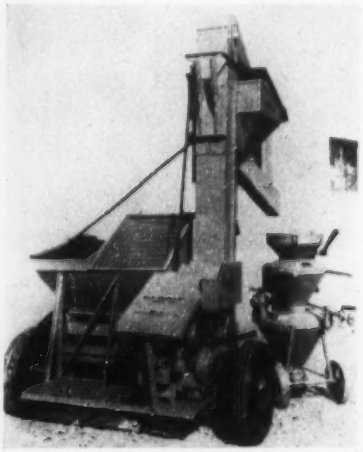
Water for cooling the diamond wheel is supplied from external sources and can be connected to either side of the unit. The water is turned on automatically as the blades lower to cutting position and is shut off as the blades retract. An auxiliary pump supplies pressure.

To save time, the blades are lowered rapidly to a preset position, then eased into the concrete at a gradual feed rate. Retraction is also fast; the entire beam and carriage assembly is lifted free of the cut hydraulically. When the blades clear the concrete, a safety lock engages to prevent accidental descent and possible blade damage. As the machine is driven from one joint location to the next, the carriage reverses on the beam to be ready for the next cut without loss of time.

The machine is quite maneuverable: it turns in its own length with the aid of a retractable center caster wheel that forms a tricycle support. Two pointer guides extend in front of the machine and two more are located under the beam for alignment purposes. FELKER MFG. CO., TORRANCE, CALIF.

Combination mixer elevator feeds air placing machines

Designed for supplying concrete to air placing machines, the Mix-Elevator proportions, mixes and lifts the mix to a convenient height for charging. An



adjustable ratio control permits a proportioning range from 1:3 to 1:8.

To insure continuous operation for all types of placing equipment, engine speed can be adjusted to yield a mixing and elevating capacity from 2½ to 8 cu yd per hour. With the machine stationed at the stockpile, only one man is required to recharge the mixer as needed—by opening a gate valve in the overhead hopper chute.

A complete screening arrangement and a single clutch control permit material or aggregate to be handled only once during the entire operation. AIR PLACEMENT EQUIPMENT CO., 1009 W. 24TH ST., KANSAS CITY, MO.

Fire fighting sprinkler douses larger area

A new type of automatic sprinkler, designated as the "spray" type, is reported to distribute water over a substantially greater area than does any standard type using the same quantities and pressures. Coverage provided by the new sprinkler is said to be up to 130 sq ft per sprinkler as compared with 100 sq ft for the conventional type. It is thus possible to protect a given area by using a smaller number of the new sprinklers.

When fire actuates the spray type of automatic sprinkler, a deflector of new design reportedly produces a wide-angle distribution of water while at the same time improving atomization and affording a more uniform density of vapor.

The sprinkler is available with a fusible element of solid organic chemical with temperature ratings of 135, 160, 212, 280, 340 and 415 F. The unit is interchangeable with the old with no change in piping. GLOBE AUTOMATIC SPRINKLER CO., 250 PARK AVE., NEW YORK 17, N. Y.

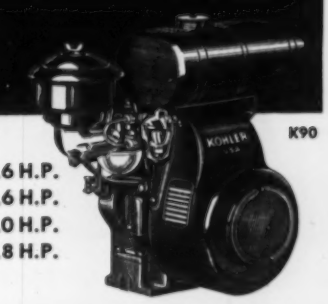
Saddle offers protection against sling chafing

A new sling saddle or corner protector has been developed that can be attached or removed from any wire rope or sling in a few seconds yet fits tight enough to prevent its sliding when not in use. Further, is it said to be easily adjustable by hand to fit various load sizes. The saddle eliminates 90-deg edges that can weaken the sling.

The saddles are made in six sizes to fit slings from ¼ to 1¼ in. in dia. Prices range from $11.50 per pair for the smallest to $39.75 per pair for the largest size. NEWMAN MFG. AND SALES CO., P. O. BOX 5939, KANSAS CITY 11, MO.

KOHLER ENGINES

4-CYCLE
AIR-COOLED



K160

K90 3.6 H.P.
K160 6.6 H.P.
K330 12.0 H.P.
K660 26.8 H.P.

Kohler Engines are engineered and manufactured to the high standards which have made the Kohler mark known for quality the world over.

Power for garden tractors, pumps, sprayers, snow removal equipment, grain elevators, hoists, portable saws, concrete mixers, compressors, industrial lift trucks.

Write for information

K330

K660

Kohler Co., Kohler, Wisconsin
Established 1873

KOHLER OF KOHLER

PLUMBING FIXTURES • HEATING EQUIPMENT • ELECTRIC PLANTS
AIR-COOLED ENGINES • PRECISION CONTROLS

McKIERNAN-TERRY
Ruggedly-Built
PILE EXTRACTORS

Provide exceptional pulling power, with the sharp energy of blow needed to vibrate and loosen stubbornly set piling. These double-acting extractors come in two standard models—heavy and extra heavy. Standardized line also contains 11 double-acting hammers and 5 single-acting hammers. Write for free bulletin.

Also builders of coal and ore bridges, bulk material unloaders, bridge operating mechanisms, hoists and marine equipment, and specially designed machinery.

McKiernan-Terry Corporation
Manufacturing Engineers
13 Park Row New York 7, N. Y.

DRILLING CONTRACTORS

Diamond and Shot Core Borings
Dry Sample Borings
Grout Holes and Pressure Grouting
Foundation Testing for Bridges,
Dams and other Heavy Structures

Manufacturers, also of Diamond Core Drilling Machines and complete accessory equipment, including all types of Diamond Drilling Bits. Ask for Bulletin 320.

SPRAGUE & HENWOOD, Inc.
Dept E, Scranton 2, Penna.

Send for your free copy of our new bulletin L-24

JOHNSTON PUMP COMPANY
BIN "K," PASADENA 19, CALIFORNIA

The BELMONT IRON WORKS

Engineers — Fabricators — Erectors
Contractors — Exporters
Cable address—Beliron
STRUCTURAL STEEL
BUILDINGS & BRIDGES
RIVETED — ARC WELDED
Shops: Eddystone, Pa.—Philadelphia, Pa. Royersford, Pa.

Main Office
22nd St. & Washington Ave.
Philadelphia 46, Pa.

New York Office
44 Whitehall St., N. Y. 4, N. Y.

TEST BORINGS
for
• COAL
• MINERALS
• DAMS & BRIDGES
• BUILDINGS

We've got to the bottom

PENNSYLVANIA Drilling CO.
DRILLING CONTRACTORS AND MFRS.
PITTSBURGH 20, PA.

PUBLICATIONS

Transmission belting—A 4-page brochure illustrates and describes Thor rayon transmission belting. The new belting with rayon plies rather than conventional cotton has been field-tested for more than four years on jobs specially selected for their severity. Results of the tests indicate that rayon transmission belting is superior to similar belting manufactured in top quality with cotton plies. Brochure A5163K.—GOODYEAR TIRE & RUBBER CO., AKRON, OHIO.

Belt conveyors—A new catalog shows the entire range of Barber-Greene standardized belt conveyors. Each standardized component and accessory is illustrated and described with line drawings showing the relationship of the unit to the entire conveyor. In addition, the range of application of each unit is tabulated for quick reference. "Barber-Greene Conveyors" presents the company's standardized drives, takeups, truss, idlers and belting, with a broad selection of each. Among the accessories listed are feeders, hoppers, conveyor supports, backstops and brakes, walkways, housings. Requests for catalog No. 76A should be made on company letterhead.—BARBER-GREENE CO., 400 N. HIGHLAND AVE., AURORA, ILL.

Plastic greenhouses—A detailed plan for building a 16x24 ft reinforced plastic greenhouse incorporates several structural innovations made possible by the new material. Except for eight 2-in. steel posts in 12-in. concrete footing, the greenhouse is built entirely of aluminum and shatterproof reinforced plastic. The illustrated building plan includes a detailed list of materials.—MONSANTO CHEMICAL CO., TEXAS CITY, TEX.

Chemical flocculation equipment—Conveying and mixing equipment for chemical flocculation at water, sewage and industrial waste treatment plants is described in booklet No. 2442. Installation photographs show many types of the company's conveying and elevating equipment for economical handling of bulk or packaged chemicals. Two types of mechanical mixers for the two chemical mixing operations are described in detail. Inserts contain general arrangement drawings and specifications. Tested layouts and selection tables to aid in determining suitable tank size for required circulation flow are included.—LINK-BELT CO., 307 N. MICHIGAN AVE., CHICAGO 1, ILL.

ADVERTISERS IN THIS ISSUE

American Manganese Steel Div., American Brake Shoe Co. 7
Amer. Mutual Liability Ins. Co. 40, 41

Baldwin-Lima-Hamilton Corp. 12
Barber-Greene Co. 45
Belmont Iron Works 78
Bethlehem Steel Co. 29
Blaw-Knox Co. 47
Byers Co., A. M. ..... 2nd Cover

Cement Gun Company 50
Chevrolet Motor Div., General Motors Corp. 14
Complete Machinery & Equip. Co. 74

Dodge Div., Chrysler Corp. 8
Douglas Fir Plywood Assn. 10
Dudgeon Inc., Richard 76

Economy Forms Corp. 49

Foundation Equip. Corp. 2

General Electric Company Electronics Dept. 6
Goodyear Tire & Rubber Co. 1
Greer & McClelland 45
Griffin Wellpoint Corp. 53
Gunite Concrete & Const. Co. 76
Gunite Construction Corp. 74

Healy-Ruff Co. 49
Hendrix Mfg. Co. 20

Irving Subway Grating Co. 10

Johnston Pump Co. 78

Keuffel & Esser Co. 53
Kohler Co. 77

LeTourneau-Westinghouse Co. 35
Lock Joint Pipe Co. 16

Mahon Co., R. C. 13
Marietta Concrete Corp. 18
Master Builders Co. ..... 3rd Cover
McGraw-Hill Book Co. 46
McKiernan-Terry Corp. 77

Northwest Engineering Co. 3

Pennsylvania Drilling Co. 78
Phoenix Bridge Co. 57
Pittsburgh Corning Corp. 9
Portland Cement Assn. 37

Raymond Concrete Pile Co. 11
Rockford Clutch Div., Borg-Warner 50
Ryerson & Sons, Inc., Jos. T. 57

Sauerman Bros., Inc. 55
Servicised Products Corp. 53
Sherman Products, Inc. 54
Sprague & Henwood, Inc. 77

Texas Company ..... 4th Cover
Timken-Detroit Axle Div., Rockwell Spring & Axle Co. 72, 73
Timken Roller Bearing Co. 4

Union Mercantile Co. 57
Union Oil Co. 75
U. S. Pipe & Foundry Co. 15

Viber Co. 48
Wheeling Corrugating Co. 70
Wood Co., R. D. 76

Youngstown Sheet & Tube Co. 5

Professional Services **69**

SEARCHLIGHT SECTION

(Classified Advertising)
H. E. Hilty, Mgr.

Employment 63, 64, 65
Business Opportunities 65
Educational 64
Notices
Proposal 61, 62
Equipment
(For Rent, Sale, Wanted) 61

ENGINEERING NEWS-RECORD

330 West 42 St., New York 36—LOngacre 4-3000
D. S. Robertson, Advertising Sales Mgr.
Howard T. Olsen, Business Manager

ADVERTISING REPRESENTATIVES

New York, 36—330 W. 42 St.,
M. J. Storz, E. A. Callahan, Jr.

Chicago, 11—520 No. Michigan Ave.,
F. G. Hudson, L. H. Hunt, W. G. Payne

San Francisco, 4—68 Post St.,
R. E. Dorland

Philadelphia, 3—17th and Sansom Sts.,
A. B. Cozzens, D. G. Jensen

Cleveland, 15—Hanna Bldg.,
E. E. Duff, Jr.

Detroit, 26—Penobscot Bldg.,
B. F. Horn

St. Louis, 8—Continental Bldg.,
W. E. Donnell

Los Angeles, 17—1111 Wilshire Blvd.,
H. L. Keeler

Atlanta, 3—Rhodes-Haverty Bldg.,
R. H. Sidur

Dallas, 1—First National Bank Bldg.,
J. H. Cash

OTHER SALES OFFICES:

Pittsburgh, 22—738-39 Oliver Bldg.
Boston, 16—350 Park Square Bldg.
London, McGraw-Hill House

McGRAW-HILL TECHNICAL WRITING SERVICE

TWS offers you a single INTEGRATED publishing service prepared to undertake a project from research and planning through finished manuscript and art, typesetting, mechanical preparation, printing and binding. Whatever the situation, whatever the type of literature you need, our editorial and art consultants can help you, bringing to your most specialized job the craft and skill of publishing experts.

WRITING EDITING ILLUSTRATING PRINTING

TO YOUR OWN OR GOVERNMENT SPECIFICATIONS

Whether you need an instruction book or service manual, to accompany your equipment, written to government specifications . . . . . or product catalogues or training booklets . . . or annual reports . . . or company histories . . . our writing staff can do the job for you, our artists can create and execute the illustrations. And McGraw-Hill printing, binding, and paper resources are among the best in the country.

SAVE MONEY AND TIME
LET OUR STAFF BE YOUR STAFF FOR TECHNICAL and BUSINESS PUBLICATIONS
ASK OUR REPRESENTATIVE TO CALL

Write • Phone
Technical Writing Service
McGraw-Hill Book Co., Inc.
330 W. 42nd St., N. Y. 36, N. Y.
LOngacre 4-3000

Bidding for engineering services

ANYONE who has read all of the comment on the editorial in our Nov. 19 issue relating to competitive bidding for engineering services (ENR Jan. 28, p. 42 and Feb. 4, p. 32) has no uncertainty in his mind as to where most of the commentators stand on that issue. They are against it.

One writer goes so far as to state that the idea of such competitive bidding "strikes at the very foundation of the whole professional movement in engineering." Others hold that the situation outlined in the editorial is one that the profession cannot ignore, but they do not favor the solution suggested. The suggestion, it will be recalled, was for the profession "to sanction the submission of competitive proposals for engineering engagements under conditions that will minimize the possibility of an award being made on the basis of price alone."

TO CONCLUDE from this, as many did, that competitive bidding is favored by this journal as the best way to contract for engineering services is entirely erroneous. The most satisfactory way to engage an engineer—or an architect—will continue to be that of free choice based on qualifications, with the fee left for secondary consideration. Nevertheless, some purchasers of engineering services—almost exclusively in the field of public works—either think otherwise or are legally required to use formal competitive bids. Under such circumstances, they should be free to seek the services of the best available engineering talent in that way; and men having that talent should be free to offer it without risk of being charged with unethical practice. Yet, both the engineer who issues a call for competitive bids and the ones who bid are subject to such a charge.

Since lack of ethics is involved only when the process leads to cheating the purchaser on the quality of services he has a right to expect for the price paid, there should be a way to conduct competitive bidding that would minimize this possibility and so guard the profession's integrity in every respect.

THE POSSIBLE PROCEDURE outlined in the editorial was suggested in that spirit. Yet most of the comments were concentrated on dangers that can arise rather than on ways to avoid them. For example, it is assumed that an engineer who would enter a competitive bid would not first study the job and the prospective client's needs as carefully as would an engineer called in to negotiate privately. Moreover, that in attempting to keep his bid low, he would skimp on his services or even reduce the salaries of his employees. But these are truly matters of ethics, and it is unbelievable that engineers of integrity would approach competitive bidding with lower ethical standards than they would follow in private negotiation. The unwary purchaser will be taken in by the unscrupulous bidder no matter what contract procedure is followed.

Another assumption is that the purchaser must accept the lowest price bid even though he knows he will be inadequately served. It is true that, with respect to construction contracts, court decisions have tended to support this requirement, but engineering contracts are in a different category. It seems quite possible that, if codes of practice, approved by the profession, contained rules under which unacceptable bids could be rejected, support would be found in the courts for rejection on the basis that it was in the public interest.

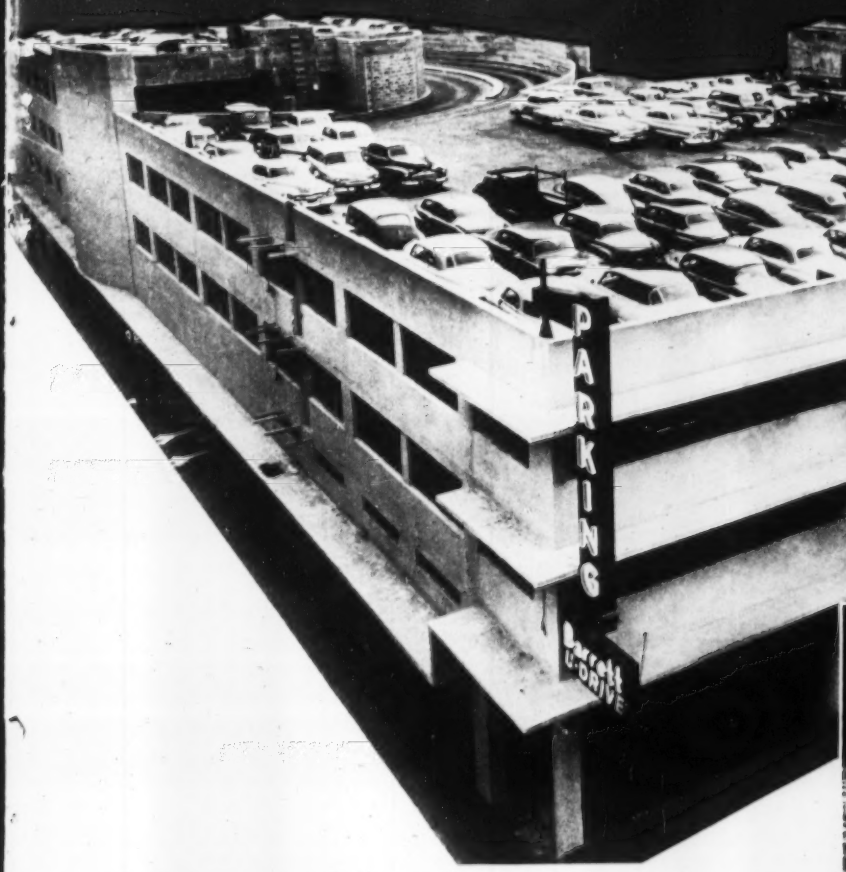
In this connection, doubts frequently are expressed that competitive bidding, no matter how handled, could be in the public interest. While there may be instances in which bidding will be lacking in this respect, there have also been cases where the public has paid more than it should for engineering services when contracts were negotiated or merely handed out. From the public interest standpoint, the dangers inherent in the misuse of political influence probably are quite as real as those from the possibility of having to accept too low a bid. On both scores professional codes can and should be equally strict.

MUCH OF THE OPPOSITION to competitive bidding seems to spring from a subconscious fear that acceptance of that method, even when hedged about with carefully drawn regulations, would be inconsistent with professionalism. Sometimes this arises from an attempt to compare engineering with medicine or the law, for example, in saying that one would not take bids from doctors to have his appendix removed. What is missed here is that doctors are not competing for the privilege of removing one's appendix, whereas engineers definitely compete for engineering engagements. To carry the medical comparison too far would place engineers in the class of ambulance chasers, which is absurd.

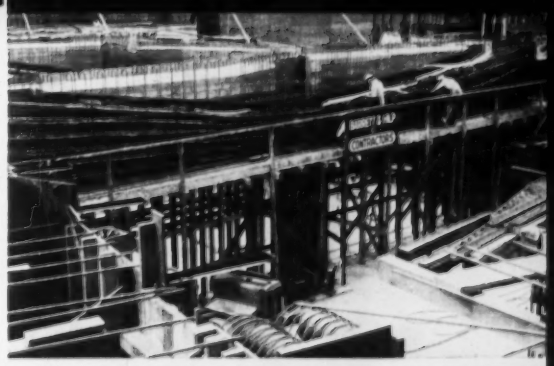
Engineering is a profession because it sets itself the task of adhering to a set of principles that involve individual integrity and service in the public interest. These principles are and can remain inviolate under various methods of doing business. The basic point of the editorial was that in whatever manner engineering-service contracts are made, the question is one of either sound or unsound business, and not one of ethics or morals.

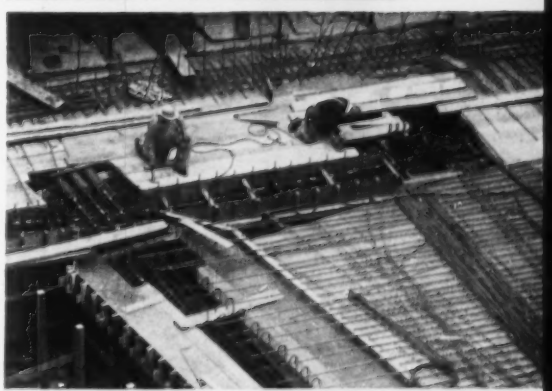
Unless the profession can demonstrate that this is not true, the stigma attached to competitive bidding should be removed, and a set of rules developed for its safe and satisfactory conduct.

world's heaviest prestressed girders here...



Barrett-Lick Garage, San Francisco, California. Structural Engineers—Ellison and King, San Francisco; General Contractor—Barrett and Hilp, San Francisco; Ready-Mixed Concrete supplied by Consumers Rock and Cement Co., San Francisco. All concrete produced with Pozzolith.





POZZOLITH* an aid in meeting concrete requirements

This project represents the successful solution of many engineering problems. One was to produce concrete of the required strength and workability with *low unit water content*...to obtain quality and economy.

As in the case of many other structures built during the last 20 years, builders found that Pozzolith enabled them to produce a mix with the least amount of water. Result—better quality concrete plus a savings.

By reducing water, Pozzolith provides these well known benefits of *low unit water content*—reduced bleeding and segregation, minimized shrinkage, low permeability, increased bond-to-steel and improved durability. *Full information on request.*

***POZZOLITH** ... the cement-dispersing, water-reducing agent which makes available the optimum amount of air in concrete and fully complies with the water-cement ratio law. Added to the mix at the mixer. Pozzolith was developed by The Master Builders Co. in 1932.

the MASTER BUILDERS Co.

Subsidiary of American-Marietta Company

Hot-Mix Texaco Asphaltic Concrete paving, under construction and completed, on US Route 85 in western South Dakota. The contractor was the Northwestern Engineering Company of Rapid City, S. D.

Laying 18 miles of Asphalt

on a Black Hills highway

South Dakota's 1953 highway program included an 18-mile project on US-85, where this route cuts through the Black Hills near the Wyoming line. A Hot-Mix Asphaltic Concrete wearing surface on a gravel base was specified by the State Highway Department. The Asphaltic Concrete was laid in two courses, with a compacted thickness of 1½ inches. Because of the rocky nature of the country, 4 inches of gravel provided an adequate base.

Hot-Mix Asphaltic Concrete is a heavy-duty pavement, which absorbs and stands up under the hardest kind of wear. No other pavement equalled its performance on test tracks for army tanks during World War II. It is demonstrating its rugged durability today under the concentrated traffic of the New Jersey Turnpike, the Holland Tunnel in New York City and the Delaware River Bridge at Philadelphia. Thousands of miles of heavily traveled trunk highways and city streets are served by this resilient, joint-free, economical type of asphalt paving.

Your own road or street project may call for a heavy-duty pavement of Hot-Mix Asphaltic Concrete. If not, the most economical solution may be supplied by one of the other plant-mixed asphalt types, by asphalt penetration macadam, road-mixed asphalt surfacing, or one of the asphalt surface-treatments. Whichever type you use, Texaco Asphalt Cements, Cut-back Asphalts and Slow-curing Asphaltic Oils include a product exactly suited to your requirements. Texaco asphaltic products are refined from scientifically selected crudes. Road builders from the Atlantic to the Rockies have paved with Texaco for half a century.

Two helpful booklets covering all types of Asphalt road and street construction can be obtained by writing our nearest office.

THE TEXAS COMPANY, Asphalt Sales Dept., 135 E. 42nd Street, New York City 17

Boston 16 Chicago 4 Denver 1 Houston 1 Jacksonville 2 Minneapolis 3 Philadelphia 2 Richmond 19

TEXACO

REG T M

TEXACO ASPHALT